SEQUENCE LISTING

<110> Kapeller-Libermann, Rosana
         Acton, Susan L.

<120> 59079 and 12599, Protein Kinase Family
   Members and Uses Therefor

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<150> 60/269201
<151> 2001-02-15

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            Met Gly Ala Ala Tyr Ser Ser Ala Arg Leu Leu Val Arg
            1   5   10

ggc cct gat gag cca gaa gag aag cct gca tca gat gtg cat gag cag 158
Gly Pro Asp Glu Pro Glu Glu Lys Pro Ala Ser Asp Val His Glu Gln
    15   20   25

ctg gtg ccg ccc cga atg ctg gag agg ttc acc ccc aag aaa gtg aag 206
Leu Val Pro Pro Arg Met Leu Glu Arg Phe Thr Pro Lys Lys Val Lys
30   35   40   45

aaa ggc tcc agc atc acc ttc tct gtg aag gta gaa gga cgc ccg gtg 254
Lys Gly Ser Ser Ile Thr Phe Ser Val Lys Val Glu Gly Arg Pro Val
                50   55   60

ccc acc gtg cac tgg ctc agg gag gag gct gag aga ggc gtg ctg tgg 302
Pro Thr Val His Trp Leu Arg Glu Glu Ala Glu Arg Gly Val Leu Trp
                65   70   75

att ggc cct gac aca ccg ggc tac acc gtg gcc agc tct gcg cag cag 350
Ile Gly Pro Asp Thr Pro Gly Tyr Thr Val Ala Ser Ser Ala Gln Gln
            80   85   90

cac agc ctg gtc ctg ctg gac gtg ggc cgg cag cac cag ggc acc tac 398
His Ser Leu Val Leu Leu Asp Val Gly Arg Gln His Gln Gly Thr Tyr

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aca tgc att gcc agc aac gct gcc ggc cag gcc ctc tgc tcc gcc agc      446
Thr Cys Ile Ala Ser Asn Ala Ala Gly Gln Ala Leu Cys Ser Ala Ser
110             115             120             125

ctg cac gtc tcg ggc ctg cct aag gtg gag gag cag gag aaa gtg aag      494
Leu His Val Ser Gly Leu Pro Lys Val Glu Glu Gln Glu Lys Val Lys
                130             135             140

gaa gcg ctg att tcc act ttc ctg cag ggg acc aca caa gcc atc tca      542
Glu Ala Leu Ile Ser Thr Phe Leu Gln Gly Thr Thr Gln Ala Ile Ser
            145             150             155

gca cag ggg ttg gaa act gcg agt ttt gct gac ctt ggt ggg cag agg      590
Ala Gln Gly Leu Glu Thr Ala Ser Phe Ala Asp Leu Gly Gly Gln Arg
        160             165             170

aaa gaa gag cct ctg gct gcc aag gag gcc ctc ggc cac ctg tcc ctc      638
Lys Glu Glu Pro Leu Ala Ala Lys Glu Ala Leu Gly His Leu Ser Leu
        175             180             185

gct gag gtg ggc aca gag gag ttc ctg cag aaa ctg acc tcc cag atc      686
Ala Glu Val Gly Thr Glu Glu Phe Leu Gln Lys Leu Thr Ser Gln Ile
190             195             200             205

act gag atg gta tcg gcc aag atc acg cag gcc aag ctg cag gtg ccc      734
Thr Glu Met Val Ser Ala Lys Ile Thr Gln Ala Lys Leu Gln Val Pro
                210             215             220

gga ggt gac agt gat gag gac tcc aag aca cca tct gca tcc ccc cgc      782
Gly Gly Asp Ser Asp Glu Asp Ser Lys Thr Pro Ser Ala Ser Pro Arg
            225             230             235

cat ggc cga tca cgg cca tcc tcc agc atc cag gag tct tcc tca gag      830
His Gly Arg Ser Arg Pro Ser Ser Ser Ile Gln Glu Ser Ser Ser Glu
            240             245             250

tca gag gac ggc gat gcc cga ggc gag atc ttt gac atc tac gtg gtc      878
Ser Glu Asp Gly Asp Ala Arg Gly Glu Ile Phe Asp Ile Tyr Val Val
255             260             265

acc gct gac tac ctg ccc cta ggg gct gag cag gat gcc atc acg ctg      926
Thr Ala Asp Tyr Leu Pro Leu Gly Ala Glu Gln Asp Ala Ile Thr Leu
270             275             280             285

cgg gaa ggc cag tat gtg gag gtc ctg gat gca gcc cac cca ctg cgc      974
Arg Glu Gly Gln Tyr Val Glu Val Leu Asp Ala Ala His Pro Leu Arg
                290             295             300

tgg ctt gtc cgc acc aag ccc acc aag tcc agc ccc tca cgg cag ggc      1022
Trp Leu Val Arg Thr Lys Pro Thr Lys Ser Ser Pro Ser Arg Gln Gly
                305             310             315

tgg gtg tca cca gcc tac ctg gac agg agg ctc aag ctg tca cct gag      1070
Trp Val Ser Pro Ala Tyr Leu Asp Arg Arg Leu Lys Leu Ser Pro Glu
            320             325             330

tgg ggg gcc gct gag gcc cct gag ttc cct ggg gag gct gtg tct gaa      1118
Trp Gly Ala Ala Glu Ala Pro Glu Phe Pro Gly Glu Ala Val Ser Glu
335             340             345
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2

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gac gaa tac aag gca agg ctg agc tct gtg atc cag gag ctg ctg agt      1166
Asp Glu Tyr Lys Ala Arg Leu Ser Ser Val Ile Gln Glu Leu Leu Ser
350             355             360             365

tct gag cag gcc ttc gtg gag gag ctg cag ttc ctg cag agc cac cac      1214
Ser Glu Gln Ala Phe Val Glu Glu Leu Gln Phe Leu Gln Ser His His
                370             375             380

ctg cag cac ctg gag cgc tgc ccc cac gtg ccc ata gcc gtg gcc ggc      1262
Leu Gln His Leu Glu Arg Cys Pro His Val Pro Ile Ala Val Ala Gly
            385             390             395

cag aag gca gtc atc ttc cgc aat gtg cgg gac atc ggc cgc ttc cac      1310
Gln Lys Ala Val Ile Phe Arg Asn Val Arg Asp Ile Gly Arg Phe His
            400             405             410

agc agc ttc ctg cag gag ttg cag cag tgc gac acg gac gac gac gtg      1358
Ser Ser Phe Leu Gln Glu Leu Gln Gln Cys Asp Thr Asp Asp Asp Val
            415             420             425

gcc atg tgc ttc atc aag aac cag gcg gcc ttt gag cag tac ctg gag      1406
Ala Met Cys Phe Ile Lys Asn Gln Ala Ala Phe Glu Gln Tyr Leu Glu
430             435             440             445

ttc ctg gtg ggg cgt gtg cag gct gag tcg gtg gtc gtc agc acg gcc      1454
Phe Leu Val Gly Arg Val Gln Ala Glu Ser Val Val Val Ser Thr Ala
                450             455             460

atc cag gag ttc tac aag aaa tac gcg gag gag gcc ctg ttg gca ggg      1502
Ile Gln Glu Phe Tyr Lys Lys Tyr Ala Glu Glu Ala Leu Leu Ala Gly
                465             470             475

gac ccc tct cag ccc ccg cca cca cct ctg cag cac tac ctg gag cag      1550
Asp Pro Ser Gln Pro Pro Pro Pro Leu Gln His Tyr Leu Glu Gln
                480             485             490

cca gtg gag cgg gtg cag cgc tac cag gcc ttg ctg aag gag ttg atc      1598
Pro Val Glu Arg Val Gln Arg Tyr Gln Ala Leu Leu Lys Glu Leu Ile
495             500             505

cgc aac aag gcg cgg aac aga cag aac tgc gcg ctg ctg gag cag gcc      1646
Arg Asn Lys Ala Arg Asn Arg Gln Asn Cys Ala Leu Leu Glu Gln Ala
510             515             520             525

tat gcc gtg gtg tct gcc ctg cca cag cgc gct gag aac aag ctg cac      1694
Tyr Ala Val Val Ser Ala Leu Pro Gln Arg Ala Glu Asn Lys Leu His
                530             535             540

gtg tcc ctc atg gag aac tac cca ggc acc ctg gag gcc ctg ggc gag      1742
Val Ser Leu Met Glu Asn Tyr Pro Gly Thr Leu Glu Ala Leu Gly Glu
                545             550             555

ccc atc cgc cag ggc cac ttc atc gtg tgg gag ggt gca ccg ggg gcc      1790
Pro Ile Arg Gln Gly His Phe Ile Val Trp Glu Gly Ala Pro Gly Ala
            560             565             570

cgc atg ccc tgg aag ggc cac aac cgt cac gtg ttc ctc ttc cgc aac      1838
Arg Met Pro Trp Lys Gly His Asn Arg His Val Phe Leu Phe Arg Asn
            575             580             585
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3

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cac ctg gta atc tgc aag ccc cgg cga gac tcc cgc acc gat acc gtc    1886
His Leu Val Ile Cys Lys Pro Arg Arg Asp Ser Arg Thr Asp Thr Val
590             595             600                 605

agc tac gtg ttc cgg aac atg atg aag ctg agc agc atc gac ctg aac    1934
Ser Tyr Val Phe Arg Asn Met Met Lys Leu Ser Ser Ile Asp Leu Asn
            610             615                 620

gac cag gtg gag ggg gat gac cgc gcc ttc gag gtg tgg cag gag cgg    1982
Asp Gln Val Glu Gly Asp Asp Arg Ala Phe Glu Val Trp Gln Glu Arg
            625             630                 635

gag gac tcg gtg cgc aag tac ctg ctg cag gca cgg aca gcc att atc    2030
Glu Asp Ser Val Arg Lys Tyr Leu Leu Gln Ala Arg Thr Ala Ile Ile
            640             645                 650

aag agc tcg tgg gtg aag gag atc tgt ggc atc cag cag cgt ctg gcc    2078
Lys Ser Ser Trp Val Lys Glu Ile Cys Gly Ile Gln Gln Arg Leu Ala
            655             660                 665

ctg cct gtg tgg cgg ccc ccg gac ttt gaa gag gag ctg gcc gac tgc    2126
Leu Pro Val Trp Arg Pro Pro Asp Phe Glu Glu Glu Leu Ala Asp Cys
670             675             680                 685

aca gcc gag ctg ggt gag aca gtc aag ctg gcc tgc cgc gtg acg ggc    2174
Thr Ala Glu Leu Gly Glu Thr Val Lys Leu Ala Cys Arg Val Thr Gly
            690             695                 700

aca ccc aag cct gtc atc agc tgg tac aaa gat ggg aaa gca gtg cag    2222
Thr Pro Lys Pro Val Ile Ser Trp Tyr Lys Asp Gly Lys Ala Val Gln
            705             710                 715

gtg gac ccc cac cac atc ctc att gaa gac cct gat ggc tcg tgt gca    2270
Val Asp Pro His His Ile Leu Ile Glu Asp Pro Asp Gly Ser Cys Ala
            720             725                 730

ctc atc ctg gac agc ctg acc ggt gtg gac tct ggc cag tac atg tgc    2318
Leu Ile Leu Asp Ser Leu Thr Gly Val Asp Ser Gly Gln Tyr Met Cys
    735             740                 745

ttc gcg gcc agc gcc gct ggc aac tgc agt acc ctg ggc aag atc ctg    2366
Phe Ala Ala Ser Ala Ala Gly Asn Cys Ser Thr Leu Gly Lys Ile Leu
750             755             760                 765

gtg caa gtc cca cca cgg ttc gtg aac aag gtc cgg gcc tca ccc ttt    2414
Val Gln Val Pro Pro Arg Phe Val Asn Lys Val Arg Ala Ser Pro Phe
            770             775                 780

gtg gag gga gag gac gcc cag ttc acc tgc acc atc gaa ggc gcc ccg    2462
Val Glu Gly Glu Asp Ala Gln Phe Thr Cys Thr Ile Glu Gly Ala Pro
            785             790                 795

tac ccg cag atc agg tgg tac aag gac ggg gcc ctg ctg acc act ggc    2510
Tyr Pro Gln Ile Arg Trp Tyr Lys Asp Gly Ala Leu Leu Thr Thr Gly
            800             805                 810

aac aag ttc cag aca ctg agt gag cct cgc agc ggc ctg cta gtg ctg    2558
Asn Lys Phe Gln Thr Leu Ser Glu Pro Arg Ser Gly Leu Leu Val Leu
            815             820                 825

gtg atc cgg gcg gcc agc aag gag gac ctg ggg ctc tac gag tgt gag    2606
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4

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Val Ile Arg Ala Ala Ser Lys Glu Asp Leu Gly Leu Tyr Glu Cys Glu
830             835             840                 845

ctg gtg aac cgg ctg ggc tcc gcg cgg gct agt gcg gag ctg cgc att    2654
Leu Val Asn Arg Leu Gly Ser Ala Arg Ala Ser Ala Glu Leu Arg Ile
                850             855                 860

cag agc ccc atg ctg cag gcc cag gag cag tgt cac agg gag cag ctc    2702
Gln Ser Pro Met Leu Gln Ala Gln Glu Gln Cys His Arg Glu Gln Leu
                865             870                 875

gtg gct gca gtg gaa gac acc acc ctg gag cga gcg gac cag gag gtc    2750
Val Ala Ala Val Glu Asp Thr Thr Leu Glu Arg Ala Asp Gln Glu Val
            880             885                 890

aca tct gtc ctg aag aga ctg ctg ggc ccc aag gcg cca ggc ccc tcc    2798
Thr Ser Val Leu Lys Arg Leu Leu Gly Pro Lys Ala Pro Gly Pro Ser
            895             900                 905

aca ggg gac ctc act ggc cct ggc ccc tgc ccc agg ggg gca ccc gca    2846
Thr Gly Asp Leu Thr Gly Pro Gly Pro Cys Pro Arg Gly Ala Pro Ala
910             915             920                 925

ctc cag gaa acc ggc tcc cag ccc cca gtc acc gga act tcg gag gca    2894
Leu Gln Glu Thr Gly Ser Gln Pro Pro Val Thr Gly Thr Ser Glu Ala
                930             935                 940

cct gcc gtg ccc ccg agg gtg cca cag ccc ctc ctc cac gaa ggc cca    2942
Pro Ala Val Pro Pro Arg Val Pro Gln Pro Leu Leu His Glu Gly Pro
            945             950                 955

gag cag gag ccg gag gcc att gcc aga gcc cag gaa tgg act gtg ccc    2990
Glu Gln Glu Pro Glu Ala Ile Ala Arg Ala Gln Glu Trp Thr Val Pro
            960             965                 970

att cgg atg gag ggt gca gcc tgg ccc ggg gca ggc aca ggg gag ctg    3038
Ile Arg Met Glu Gly Ala Ala Trp Pro Gly Ala Gly Thr Gly Glu Leu
975             980             985

ctc tgg gac gtc cac agc cac gtg gtc aga gag acc aca cag agg acc    3086
Leu Trp Asp Val His Ser His Val Val Arg Glu Thr Thr Gln Arg Thr
990             995             1000                1005

tac aca tac cag gcc atc gac acg cac acc gca cgg ccc cca tcc atg    3134
Tyr Thr Tyr Gln Ala Ile Asp Thr His Thr Ala Arg Pro Pro Ser Met
                1010            1015                1020

cag gta acc atc gag gat gtg cag gca cag aca ggc gga acg gcc caa    3182
Gln Val Thr Ile Glu Asp Val Gln Ala Gln Thr Gly Gly Thr Ala Gln
            1025            1030                1035

ttc gag gct atc att gag ggc gac cca cag ccc tcg gtg acc tgg tac    3230
Phe Glu Ala Ile Ile Glu Gly Asp Pro Gln Pro Ser Val Thr Trp Tyr
            1040            1045                1050

aag gac agc gtc cag ctg gtg gac agc acc cgg ctt agc cag cag caa    3278
Lys Asp Ser Val Gln Leu Val Asp Ser Thr Arg Leu Ser Gln Gln Gln
1055            1060                1065

gaa ggc acc aca tac tcc ctg gtg ctg agg cat gtg gcc tcg aag gat    3326
Glu Gly Thr Thr Tyr Ser Leu Val Leu Arg His Val Ala Ser Lys Asp
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5

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gcc ggc gtt tac acc tgc ctg gcc caa aac act ggt ggc cag gtg ctc      3374
Ala Gly Val Tyr Thr Cys Leu Ala Gln Asn Thr Gly Gly Gln Val Leu
                1090                1095                1100

tgc aag gca gag ctg ctg gtg ctt ggg ggg gac aat gag ccg gac tca      3422
Cys Lys Ala Glu Leu Leu Val Leu Gly Gly Asp Asn Glu Pro Asp Ser
                1105                1110                1115

gag aag caa agc cac cgg agg aag ctg cac tcc ttc tat gag gtc aag      3470
Glu Lys Gln Ser His Arg Arg Lys Leu His Ser Phe Tyr Glu Val Lys
                1120                1125                1130

gag gag att gga agg ggc gtg ttt ggc ttc gta aaa aga gtg cag cac      3518
Glu Glu Ile Gly Arg Gly Val Phe Gly Phe Val Lys Arg Val Gln His
                1135                1140                1145

aaa gga aac aag atc ttg tgc gct gcc aag ttc atc ccc cta cgg agc      3566
Lys Gly Asn Lys Ile Leu Cys Ala Ala Lys Phe Ile Pro Leu Arg Ser
1150                1155                1160                1165

aga act cgg gcc cag gca tac agg gag cga gac atc ctg gcc gcg ctg      3614
Arg Thr Arg Ala Gln Ala Tyr Arg Glu Arg Asp Ile Leu Ala Ala Leu
                1170                1175                1180

agc cac ccg ctg gtc acg ggg ctg ctg gac cag ttt gag acc cgc aag      3662
Ser His Pro Leu Val Thr Gly Leu Leu Asp Gln Phe Glu Thr Arg Lys
                1185                1190                1195

acc ctc atc ctc atc ctg gag ctg tgc tca tcc gag gag ctg ctg gac      3710
Thr Leu Ile Leu Ile Leu Glu Leu Cys Ser Ser Glu Glu Leu Leu Asp
                1200                1205                1210

cgc ctg tac agg aag ggc gtg gtg acg gag gcc gag gtc aag gtc tac      3758
Arg Leu Tyr Arg Lys Gly Val Val Thr Glu Ala Glu Val Lys Val Tyr
                1215                1220                1225

atc cag cag ctg gtg gag ggg ctg cac tac ctg cac agc cat ggc gtt      3806
Ile Gln Gln Leu Val Glu Gly Leu His Tyr Leu His Ser His Gly Val
1230                1235                1240                1245

ctc cac ctg gac ata aag ccc tct aac atc ctg atg gtg cat cct gcc      3854
Leu His Leu Asp Ile Lys Pro Ser Asn Ile Leu Met Val His Pro Ala
                1250                1255                1260

cgg gaa gac att aaa atc tgc gac ttt ggc ttt gcc cag aac atc acc      3902
Arg Glu Asp Ile Lys Ile Cys Asp Phe Gly Phe Ala Gln Asn Ile Thr
                1265                1270                1275

cca gca gag ctg cag ttc agc cag tac ggc tcc cct gag ttc gtc tcc      3950
Pro Ala Glu Leu Gln Phe Ser Gln Tyr Gly Ser Pro Glu Phe Val Ser
                1280                1285                1290

ccc gag atc atc cag cag aac cct gtg agc gaa gcc tcc gac att tgg      3998
Pro Glu Ile Ile Gln Gln Asn Pro Val Ser Glu Ala Ser Asp Ile Trp
                1295                1300                1305

gcc atg ggt gtc atc tcc tac ctc agc ctg acc tgc tca tcc cca ttt      4046
Ala Met Gly Val Ile Ser Tyr Leu Ser Leu Thr Cys Ser Ser Pro Phe
1310                1315                1320                1325
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6

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gcc ggc gag agt gac cgt gcc acc ctc ctg aac gtc ctg gag ggg cgc      4094
Ala Gly Glu Ser Asp Arg Ala Thr Leu Leu Asn Val Leu Glu Gly Arg
            1330                1335                1340

gtg tca tgg agc agc ccc atg gct gcc cac ctc agc gaa gac gcc aaa      4142
Val Ser Trp Ser Ser Pro Met Ala Ala His Leu Ser Glu Asp Ala Lys
            1345                1350                1355

gac ttc atc aag gct acg ctg cag aga gcc cct cag gcc cgg cct agt      4190
Asp Phe Ile Lys Ala Thr Leu Gln Arg Ala Pro Gln Ala Arg Pro Ser
            1360                1365                1370

gcg gcc cag tgc ctc tcc cac ccc tgg ttc ctg aaa tcc atg cct gcg      4238
Ala Ala Gln Cys Leu Ser His Pro Trp Phe Leu Lys Ser Met Pro Ala
            1375                1380                1385

gag gag gcc cac ttc atc aac acc aag cag ctc aag ttc ctc ctg gcc      4286
Glu Glu Ala His Phe Ile Asn Thr Lys Gln Leu Lys Phe Leu Leu Ala
1390                1395                1400                1405

cga agt cgc tgg cag cgt tcc ctg atg agc tac aag tcc atc ctg gtg      4334
Arg Ser Arg Trp Gln Arg Ser Leu Met Ser Tyr Lys Ser Ile Leu Val
                1410                1415                1420

atg cgc tcc atc cct gag ctg ctg cgg ggc cca ccc gac agc ccc tcc      4382
Met Arg Ser Ile Pro Glu Leu Leu Arg Gly Pro Pro Asp Ser Pro Ser
                1425                1430                1435

ctc ggc gta gcc cgg cac ctc tgc agg gac act ggt ggc tcc tcc agt      4430
Leu Gly Val Ala Arg His Leu Cys Arg Asp Thr Gly Gly Ser Ser Ser
                1440                1445                1450

tcc tcc tcc tcc tct gac aac gag ctc gcc cca ttt gcc cgg gct aag      4478
Ser Ser Ser Ser Ser Asp Asn Glu Leu Ala Pro Phe Ala Arg Ala Lys
            1455                1460                1465

tca ctg cca ccc tcc ccg gtg aca cac tca cca ctg ctg cac ccc cgg      4526
Ser Leu Pro Pro Ser Pro Val Thr His Ser Pro Leu Leu His Pro Arg
1470                1475                1480                1485

ggc ttc ctg cgg ccc tcg gcc agc ctg cct gag gaa gcc gag gcc agt      4574
Gly Phe Leu Arg Pro Ser Ala Ser Leu Pro Glu Glu Ala Glu Ala Ser
                1490                1495                1500

gag cgc tcc acc gag gcc cca gct ccg cct gca tct ccc gag ggt gcc      4622
Glu Arg Ser Thr Glu Ala Pro Ala Pro Pro Ala Ser Pro Glu Gly Ala
            1505                1510                1515

ggg cca ccg gcc gcc cag ggc tgc gtg ccc cgg cac agc gtc atc cgc      4670
Gly Pro Pro Ala Ala Gln Gly Cys Val Pro Arg His Ser Val Ile Arg
            1520                1525                1530

agc ctg ttc tac cac cag gcg ggt gag agc cct gag cac ggg gcc ctg      4718
Ser Leu Phe Tyr His Gln Ala Gly Glu Ser Pro Glu His Gly Ala Leu
            1535                1540                1545

gcc ccg ggg agc agg cgg cac ccg gcc cgg cgg cgg cac ctg ctg aag      4766
Ala Pro Gly Ser Arg Arg His Pro Ala Arg Arg Arg His Leu Leu Lys
1550                1555                1560                1565
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7

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ggc ggg tac att gcg ggg gcg ctg cca ggc ctg cgc gag cca ctg atg    4814
Gly Gly Tyr Ile Ala Gly Ala Leu Pro Gly Leu Arg Glu Pro Leu Met
            1570                1575                1580

gag cac cgc gtg ctg gag gag gag gcc gcc agg gag gag cag gcc acc    4862
Glu His Arg Val Leu Glu Glu Glu Ala Ala Arg Glu Glu Gln Ala Thr
            1585                1590                1595

ctc ctg gcc aaa gcc ccc tca ttc gag act gcc ctc cgg ctg cct gcc    4910
Leu Leu Ala Lys Ala Pro Ser Phe Glu Thr Ala Leu Arg Leu Pro Ala
            1600                1605                1610

tct ggc acc cac ttg gcc cct ggc cac agc cac tcc ctg gaa cat gac    4958
Ser Gly Thr His Leu Ala Pro Gly His Ser His Ser Leu Glu His Asp
            1615                1620                1625

tct ccg agc acc ccc cgc ccc tcc tcg gag gcc tgc ggt gag gca cag    5006
Ser Pro Ser Thr Pro Arg Pro Ser Ser Glu Ala Cys Gly Glu Ala Gln
1630                1635                1640                1645

cga ctg cct tca gcc ccc tcc ggg ggg gcc cct atc agg gac atg ggg    5054
Arg Leu Pro Ser Ala Pro Ser Gly Gly Ala Pro Ile Arg Asp Met Gly
                1650                1655                1660

cac cct cag ggc tcc aag cag ctt cca tcc act ggt ggc cac cca ggc    5102
His Pro Gln Gly Ser Lys Gln Leu Pro Ser Thr Gly Gly His Pro Gly
            1665                1670                1675

act gct cag cca gag agg cca tcc ccg gac agc cct tgg ggg cag cca    5150
Thr Ala Gln Pro Glu Arg Pro Ser Pro Asp Ser Pro Trp Gly Gln Pro
            1680                1685                1690

gcc cct ttc tgc cac ccc aag cag ggt tct gcc ccc cag gag ggc tgc    5198
Ala Pro Phe Cys His Pro Lys Gln Gly Ser Ala Pro Gln Glu Gly Cys
            1695                1700                1705

agc ccc cac cca gca gtt gcc cca tgc cct cct ggc tcc ttc cct cca    5246
Ser Pro His Pro Ala Val Ala Pro Cys Pro Pro Gly Ser Phe Pro Pro
1710                1715                1720                1725

gga tct tgc aaa gag gcc ccc tta gta ccc tca agc ccc ttc ttg gga    5294
Gly Ser Cys Lys Glu Ala Pro Leu Val Pro Ser Ser Pro Phe Leu Gly
                1730                1735                1740

cag ccc cag gca ccc cct gcc cct gcc aaa gca agc ccc cca ttg gac    5342
Gln Pro Gln Ala Pro Pro Ala Pro Ala Lys Ala Ser Pro Pro Leu Asp
                1745                1750                1755

tct aag atg ggg cct gga gac atc tct ctt cct ggg agg cca aaa ccc    5390
Ser Lys Met Gly Pro Gly Asp Ile Ser Leu Pro Gly Arg Pro Lys Pro
            1760                1765                1770

ggc ccc tgc agt tcc cca ggg tca gcc tcc cag gcg agc tct tcc caa    5438
Gly Pro Cys Ser Ser Pro Gly Ser Ala Ser Gln Ala Ser Ser Ser Gln
            1775                1780                1785

gtg agc tcc ctc agg gtg ggc tcc tcc cag gtg ggc aca gag cct ggc    5486
Val Ser Ser Leu Arg Val Gly Ser Ser Gln Val Gly Thr Glu Pro Gly
1790                1795                1800                1805

ccc tcc ctg gat gcg gag ggc tgg acc cag gag gct gag gat ctg tcc    5534
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8

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Pro Ser Leu Asp Ala Glu Gly Trp Thr Gln Glu Ala Glu Asp Leu Ser
            1810                1815                1820

gac tcc aca ccc acc ttg cag cgg cct cag gaa cag gcg acc atg cgc      5582
Asp Ser Thr Pro Thr Leu Gln Arg Pro Gln Glu Gln Ala Thr Met Arg
            1825                1830                1835

aag ttc tcc ctg ggt ggt cgc ggg ggc tac gca ggc gtg gct ggc tat      5630
Lys Phe Ser Leu Gly Gly Arg Gly Gly Tyr Ala Gly Val Ala Gly Tyr
            1840                1845                1850

ggc acc ttt gcc ttt ggt gga gat gca ggg ggc atg ctg ggg cag ggg      5678
Gly Thr Phe Ala Phe Gly Gly Asp Ala Gly Gly Met Leu Gly Gln Gly
            1855                1860                1865

ccc atg tgg gcc agg ata gcc tgg gct gtg tcc cag tcg gag gag gag      5726
Pro Met Trp Ala Arg Ile Ala Trp Ala Val Ser Gln Ser Glu Glu Glu
1870                1875                1880                1885

gag cag gag gag gcc agg gct gag tcc cag tcg gag gag cag cag gag      5774
Glu Gln Glu Glu Ala Arg Ala Glu Ser Gln Ser Glu Glu Gln Gln Glu
            1890                1895                1900

gcc agg gct gag agc cca ctg ccc cag gtc agt gca agg cct gtg cct      5822
Ala Arg Ala Glu Ser Pro Leu Pro Gln Val Ser Ala Arg Pro Val Pro
            1905                1910                1915

gag gtc ggc agg gct ccc acc agg agc tct cca gag ccc acc cca tgg      5870
Glu Val Gly Arg Ala Pro Thr Arg Ser Ser Pro Glu Pro Thr Pro Trp
            1920                1925                1930

gag gac atc ggg cag gtc tcc ctg gtg cag atc cgg gac ctg tca ggt      5918
Glu Asp Ile Gly Gln Val Ser Leu Val Gln Ile Arg Asp Leu Ser Gly
            1935                1940                1945

gat gcg gag gcg gcc gac aca ata tcc ctg gac att tcc gag gtg gac      5966
Asp Ala Glu Ala Ala Asp Thr Ile Ser Leu Asp Ile Ser Glu Val Asp
1950                1955                1960                1965

ccc gcc tac ctc aac ctc tca gac ctg tac gat atc aag tac ctc cca      6014
Pro Ala Tyr Leu Asn Leu Ser Asp Leu Tyr Asp Ile Lys Tyr Leu Pro
            1970                1975                1980

ttc gag ttt atg atc ttc agg aaa gtc ccc aag tcc gct cag cca gag      6062
Phe Glu Phe Met Ile Phe Arg Lys Val Pro Lys Ser Ala Gln Pro Glu
            1985                1990                1995

ccg ccc tcc ccc atg gct gag gag gag ctg gcc gag ttc ccg gag ccc      6110
Pro Pro Ser Pro Met Ala Glu Glu Glu Leu Ala Glu Phe Pro Glu Pro
            2000                2005                2010

acg tgg ccc tgg cca ggt gaa ctg ggc ccc cac gca ggc ctg gag atc      6158
Thr Trp Pro Trp Pro Gly Glu Leu Gly Pro His Ala Gly Leu Glu Ile
            2015                2020                2025

aca gag gag tca gag gat gtg gac gcg ctg ctg gca gag gct gcc gtg      6206
Thr Glu Glu Ser Glu Asp Val Asp Ala Leu Leu Ala Glu Ala Ala Val
2030                2035                2040                2045

ggc agg aag cgc aag tgg tcc tcg ccg tca cgc agc ctc ttc cac ttc      6254
Gly Arg Lys Arg Lys Trp Ser Ser Pro Ser Arg Ser Leu Phe His Phe
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cct ggg agg cac ctg ccg ctg gat gag cct gca gag ctg ggg ctg cgt   6302
Pro Gly Arg His Leu Pro Leu Asp Glu Pro Ala Glu Leu Gly Leu Arg
        2065                2070                2075

gag aga gtg aag gcc tcc gtg gag cac atc tcc cgg atc ctg aag ggc   6350
Glu Arg Val Lys Ala Ser Val Glu His Ile Ser Arg Ile Leu Lys Gly
        2080                2085                2090

agg ccg gaa ggt ctg gag aag gag ggg ccc ccc agg aag aag cca ggc   6398
Arg Pro Glu Gly Leu Glu Lys Glu Gly Pro Pro Arg Lys Lys Pro Gly
        2095                2100                2105

ctt gct tcc ttc cgg ctc tca ggt ctg aag agc tgg gac cga gcg ccg   6446
Leu Ala Ser Phe Arg Leu Ser Gly Leu Lys Ser Trp Asp Arg Ala Pro
2110                2115                2120                2125

aca ttc cta agg gag ctc tca gat gag act gtg gtc ctg ggc cag tca   6494
Thr Phe Leu Arg Glu Leu Ser Asp Glu Thr Val Val Leu Gly Gln Ser
                2130                2135                2140

gtg aca ctg gcc tgc cag gtg tca gcc cag cca gct gcc cag gcc acc   6542
Val Thr Leu Ala Cys Gln Val Ser Ala Gln Pro Ala Ala Gln Ala Thr
        2145                2150                2155

tgg agc aaa gac gga gcc ccc ctg gag agc agc agc cgt gtc ctc atc   6590
Trp Ser Lys Asp Gly Ala Pro Leu Glu Ser Ser Ser Arg Val Leu Ile
        2160                2165                2170

tct gcc acc ctc aag aac ttc cag ctt ctg acc atc ctg gtg gtg gtg   6638
Ser Ala Thr Leu Lys Asn Phe Gln Leu Leu Thr Ile Leu Val Val Val
        2175                2180                2185

gct gag gac ctg ggt gtg tac acc tgc agc gtg agc aat gcg ctg ggg   6686
Ala Glu Asp Leu Gly Val Tyr Thr Cys Ser Val Ser Asn Ala Leu Gly
2190                2195                2200                2205

aca gtg acc acc acg ggc gtc ctc cgg aag gca gag cgc ccc tca tct   6734
Thr Val Thr Thr Thr Gly Val Leu Arg Lys Ala Glu Arg Pro Ser Ser
                2210                2215                2220

tcg cca tgc ccg gat atc ggg gag gtg tac gcg gat ggg gtg ctg ctg   6782
Ser Pro Cys Pro Asp Ile Gly Glu Val Tyr Ala Asp Gly Val Leu Leu
                2225                2230                2235

gtc tgg aag ccc gtg gaa tcc tac ggc cct gtg acc tac att gtg cag   6830
Val Trp Lys Pro Val Glu Ser Tyr Gly Pro Val Thr Tyr Ile Val Gln
                2240                2245                2250

tgc agc cta gaa ggc ggc agc tgg acc aca ctg gcc tcc gac atc ttt   6878
Cys Ser Leu Glu Gly Gly Ser Trp Thr Thr Leu Ala Ser Asp Ile Phe
        2255                2260                2265

gac tgc tgc tac ctg acc agc aag ctc tcc cgg ggt ggc acc tac acc   6926
Asp Cys Cys Tyr Leu Thr Ser Lys Leu Ser Arg Gly Gly Thr Tyr Thr
2270                2275                2280                2285

ttc cgc acg gca tgt gtc agc aag gca gga atg ggt ccc tac agc agc   6974
Phe Arg Thr Ala Cys Val Ser Lys Ala Gly Met Gly Pro Tyr Ser Ser
                2290                2295                2300
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ccc tcg gag caa gtc ctc ctg gga ggg ccc agc cac ctg gcc tct gag    7022
Pro Ser Glu Gln Val Leu Leu Gly Gly Pro Ser His Leu Ala Ser Glu
        2305                2310                2315

gag gag agc cag ggg cgg tca gcc caa ccc ctg ccc agc aca aag acc    7070
Glu Glu Ser Gln Gly Arg Ser Ala Gln Pro Leu Pro Ser Thr Lys Thr
        2320                2325                2330

ttc gca ttc cag aca cag atc cag agg ggc cgc ttc agc gtg gtg cgg    7118
Phe Ala Phe Gln Thr Gln Ile Gln Arg Gly Arg Phe Ser Val Val Arg
        2335                2340                2345

caa tgc tgg gag aag gcc agc ggg cgg gcg ctg gcc gcc aag atc atc    7166
Gln Cys Trp Glu Lys Ala Ser Gly Arg Ala Leu Ala Ala Lys Ile Ile
2350                2355                2360                2365

ccc tac cac ccc aag gac aag aca gca gtg ctg cgc gaa tac gag gcc    7214
Pro Tyr His Pro Lys Asp Lys Thr Ala Val Leu Arg Glu Tyr Glu Ala
                2370                2375                2380

ctc aag ggc ctg cgc cac ccg cac ctg gcc cag ctg cac gca gcc tac    7262
Leu Lys Gly Leu Arg His Pro His Leu Ala Gln Leu His Ala Ala Tyr
        2385                2390                2395

ctc agc ccc cgg cac ctg gtg ctc atc ttg gag ctg tgc tct ggg ccc    7310
Leu Ser Pro Arg His Leu Val Leu Ile Leu Glu Leu Cys Ser Gly Pro
        2400                2405                2410

gag ctg ctc ccc tgc ctg gcc gag agg gcc tcc tac tca gaa tcc gag    7358
Glu Leu Leu Pro Cys Leu Ala Glu Arg Ala Ser Tyr Ser Glu Ser Glu
        2415                2420                2425

gtg aag gac tac ctg tgg cag atg ttg agt gcc acc cag tac ctg cac    7406
Val Lys Asp Tyr Leu Trp Gln Met Leu Ser Ala Thr Gln Tyr Leu His
2430                2435                2440                2445

aac cag cac atc ctg cac ctg gac ctg agg tcc gag aac atg atc atc    7454
Asn Gln His Ile Leu His Leu Asp Leu Arg Ser Glu Asn Met Ile Ile
                2450                2455                2460

acc gaa tac aac ctg ctc aag gtc gtg gac ctg ggc aat gca cag agc    7502
Thr Glu Tyr Asn Leu Leu Lys Val Val Asp Leu Gly Asn Ala Gln Ser
                2465                2470                2475

ctc agc cag gag aag gtg ctg ccc tca gac aag ttc aag gac tac cta    7550
Leu Ser Gln Glu Lys Val Leu Pro Ser Asp Lys Phe Lys Asp Tyr Leu
        2480                2485                2490

gag acc atg gct cca gag ctc ctg gag ggc cag ggg gct gtt cca cag    7598
Glu Thr Met Ala Pro Glu Leu Leu Glu Gly Gln Gly Ala Val Pro Gln
        2495                2500                2505

aca gac atc tgg gcc atc ggt gtg aca gcc ttc atc atg ctg agc gcc    7646
Thr Asp Ile Trp Ala Ile Gly Val Thr Ala Phe Ile Met Leu Ser Ala
2510                2515                2520                2525

gag tac ccg gtg agc agc gag ggt gca cgc gac ctg cag aga gga ctg    7694
Glu Tyr Pro Val Ser Ser Glu Gly Ala Arg Asp Leu Gln Arg Gly Leu
                2530                2535                2540
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cgc aag ggg ctg gtc cgg ctg agc cgc tgc tac gcg ggg ctg tcc ggg   7742
Arg Lys Gly Leu Val Arg Leu Ser Arg Cys Tyr Ala Gly Leu Ser Gly
        2545                    2550                2555

ggc gcc gtg gcc ttc ctg cgc agc act ctg tgc gcc cag ccc tgg ggc   7790
Gly Ala Val Ala Phe Leu Arg Ser Thr Leu Cys Ala Gln Pro Trp Gly
        2560                    2565                2570

cgg ccc tgc gcg tcc agc tgc ctg cag tgc ccg tgg cta aca gag gag   7838
Arg Pro Cys Ala Ser Ser Cys Leu Gln Cys Pro Trp Leu Thr Glu Glu
        2575                    2580                2585

ggc ccg gcc tgt tcg cgg ccc gcg ccc gtg acc ttc cct acc gcg cgg   7886
Gly Pro Ala Cys Ser Arg Pro Ala Pro Val Thr Phe Pro Thr Ala Arg
2590                    2595                2600                2605

ctg cgc gtc ttc gtg cgc aat cgc gag aag aga cgc gcg ctg ctg tac   7934
Leu Arg Val Phe Val Arg Asn Arg Glu Lys Arg Arg Ala Leu Leu Tyr
                2610                    2615                2620

aag agg cac aac ctg gcc cag gtg cgc tga gggtcgcccc ggccacaccc     7984
Lys Arg His Asn Leu Ala Gln Val Arg  *
                2625                    2630

ttggtctccc cgctgggggt cgctgcagac gcgccaataa aaacgcccag ccgggcgaga 8044
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaag gcggccgcta aaaagtcta  8104
ga                                                               8106

<210> 2
<211> 2630
<212> PRT
<213> Homo sapiens

<400> 2
Met Gly Ala Ala Tyr Ser Ser Ala Arg Leu Leu Val Arg Gly Pro Asp
 1               5                  10                  15
Glu Pro Glu Glu Lys Pro Ala Ser Asp Val His Glu Gln Leu Val Pro
                20                  25                  30
Pro Arg Met Leu Glu Arg Phe Thr Pro Lys Lys Val Lys Lys Gly Ser
        35                  40                  45
Ser Ile Thr Phe Ser Val Lys Val Glu Gly Arg Pro Val Pro Thr Val
        50                  55                  60
His Trp Leu Arg Glu Glu Ala Glu Arg Gly Val Leu Trp Ile Gly Pro
65                  70                  75                  80
Asp Thr Pro Gly Tyr Thr Val Ala Ser Ser Ala Gln Gln His Ser Leu
                85                  90                  95
Val Leu Leu Asp Val Gly Arg Gln His Gln Gly Thr Tyr Thr Cys Ile
                100                 105                 110
Ala Ser Asn Ala Ala Gly Gln Ala Leu Cys Ser Ala Ser Leu His Val
        115                 120                 125
Ser Gly Leu Pro Lys Val Glu Glu Gln Glu Lys Val Lys Glu Ala Leu
        130                 135                 140
Ile Ser Thr Phe Leu Gln Gly Thr Thr Gln Ala Ile Ser Ala Gln Gly
145                 150                 155                 160
Leu Glu Thr Ala Ser Phe Ala Asp Leu Gly Gly Gln Arg Lys Glu Glu
                165                 170                 175
Pro Leu Ala Ala Lys Glu Ala Leu Gly His Leu Ser Leu Ala Glu Val
                180                 185                 190
Gly Thr Glu Glu Phe Leu Gln Lys Leu Thr Ser Gln Ile Thr Glu Met
        195                 200                 205
Val Ser Ala Lys Ile Thr Gln Ala Lys Leu Gln Val Pro Gly Gly Asp
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              210                    215                      220
Ser Asp Glu Asp Ser Lys Thr Pro Ser Ala Ser Pro Arg His Gly Arg
225                 230                 235                 240
Ser Arg Pro Ser Ser Ser Ile Gln Glu Ser Ser Glu Ser Glu Asp
                245                 250                 255
Gly Asp Ala Arg Gly Glu Ile Phe Asp Ile Tyr Val Val Thr Ala Asp
            260                 265                 270
Tyr Leu Pro Leu Gly Ala Glu Gln Asp Ala Ile Thr Leu Arg Glu Gly
        275                 280                 285
Gln Tyr Val Glu Val Leu Asp Ala Ala His Pro Leu Arg Trp Leu Val
    290                 295                 300
Arg Thr Lys Pro Thr Lys Ser Ser Pro Ser Arg Gln Gly Trp Val Ser
305                 310                 315                 320
Pro Ala Tyr Leu Asp Arg Arg Leu Lys Leu Ser Pro Glu Trp Gly Ala
            325                 330                 335
Ala Glu Ala Pro Glu Phe Pro Gly Glu Ala Val Ser Glu Asp Glu Tyr
            340                 345                 350
Lys Ala Arg Leu Ser Ser Val Ile Gln Glu Leu Leu Ser Ser Glu Gln
        355                 360                 365
Ala Phe Val Glu Glu Leu Gln Phe Leu Gln Ser His His Leu Gln His
    370                 375                 380
Leu Glu Arg Cys Pro His Val Pro Ile Ala Val Ala Gly Gln Lys Ala
385                 390                 395                 400
Val Ile Phe Arg Asn Val Arg Asp Ile Gly Arg Phe His Ser Ser Phe
            405                 410                 415
Leu Gln Glu Leu Gln Gln Cys Asp Thr Asp Asp Asp Val Ala Met Cys
            420                 425                 430
Phe Ile Lys Asn Gln Ala Ala Phe Glu Gln Tyr Leu Glu Phe Leu Val
        435                 440                 445
Gly Arg Val Gln Ala Glu Ser Val Val Val Ser Thr Ala Ile Gln Glu
    450                 455                 460
Phe Tyr Lys Lys Tyr Ala Glu Glu Ala Leu Leu Ala Gly Asp Pro Ser
465                 470                 475                 480
Gln Pro Pro Pro Pro Leu Gln His Tyr Leu Glu Gln Pro Val Glu
            485                 490                 495
Arg Val Gln Arg Tyr Gln Ala Leu Leu Lys Glu Leu Ile Arg Asn Lys
        500                 505                 510
Ala Arg Asn Arg Gln Asn Cys Ala Leu Leu Glu Gln Ala Tyr Ala Val
        515                 520                 525
Val Ser Ala Leu Pro Gln Arg Ala Glu Asn Lys Leu His Val Ser Leu
    530                 535                 540
Met Glu Asn Tyr Pro Gly Thr Leu Glu Ala Leu Gly Glu Pro Ile Arg
545                 550                 555                 560
Gln Gly His Phe Ile Val Trp Glu Gly Ala Pro Gly Ala Arg Met Pro
            565                 570                 575
Trp Lys Gly His Asn Arg His Val Phe Leu Phe Arg Asn His Leu Val
            580                 585                 590
Ile Cys Lys Pro Arg Arg Asp Ser Arg Thr Asp Thr Val Ser Tyr Val
            595                 600                 605
Phe Arg Asn Met Met Lys Leu Ser Ser Ile Asp Leu Asn Asp Gln Val
    610                 615                 620
Glu Gly Asp Asp Arg Ala Phe Glu Val Trp Gln Glu Arg Glu Asp Ser
625                 630                 635                 640
Val Arg Lys Tyr Leu Leu Gln Ala Arg Thr Ala Ile Ile Lys Ser Ser
            645                 650                 655
Trp Val Lys Glu Ile Cys Gly Ile Gln Gln Arg Leu Ala Leu Pro Val
            660                 665                 670
Trp Arg Pro Pro Asp Phe Glu Glu Glu Leu Ala Asp Cys Thr Ala Glu
        675                 680                 685
Leu Gly Glu Thr Val Lys Leu Ala Cys Arg Val Thr Gly Thr Pro Lys
        690                 695                 700
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Pro Val Ile Ser Trp Tyr Lys Asp Gly Lys Ala Val Gln Val Asp Pro
705                 710             715                     720
His His Ile Leu Ile Glu Asp Pro Asp Gly Ser Cys Ala Leu Ile Leu
                725             730                         735
Asp Ser Leu Thr Gly Val Asp Ser Gly Gln Tyr Met Cys Phe Ala Ala
            740             745             750
Ser Ala Ala Gly Asn Cys Ser Thr Leu Gly Lys Ile Leu Val Gln Val
        755             760                 765
Pro Pro Arg Phe Val Asn Lys Val Arg Ala Ser Pro Phe Val Glu Gly
    770             775                 780
Glu Asp Ala Gln Phe Thr Cys Thr Ile Glu Gly Ala Pro Tyr Pro Gln
785             790             795                     800
Ile Arg Trp Tyr Lys Asp Gly Ala Leu Leu Thr Thr Gly Asn Lys Phe
            805             810                 815
Gln Thr Leu Ser Glu Pro Arg Ser Gly Leu Leu Val Leu Val Ile Arg
        820             825                 830
Ala Ala Ser Lys Glu Asp Leu Gly Leu Tyr Glu Cys Glu Leu Val Asn
        835             840             845
Arg Leu Gly Ser Ala Arg Ala Ser Ala Glu Leu Arg Ile Gln Ser Pro
    850             855             860
Met Leu Gln Ala Gln Glu Gln Cys His Arg Glu Gln Leu Val Ala Ala
865             870             875                     880
Val Glu Asp Thr Thr Leu Glu Arg Ala Asp Gln Glu Val Thr Ser Val
            885             890             895
Leu Lys Arg Leu Leu Gly Pro Lys Ala Pro Gly Pro Ser Thr Gly Asp
        900             905             910
Leu Thr Gly Pro Gly Pro Cys Pro Arg Gly Ala Pro Ala Leu Gln Glu
        915             920             925
Thr Gly Ser Gln Pro Pro Val Thr Gly Thr Ser Glu Ala Pro Ala Val
    930             935             940
Pro Pro Arg Val Pro Gln Pro Leu Leu His Glu Gly Pro Glu Gln Glu
945             950             955                     960
Pro Glu Ala Ile Ala Arg Ala Gln Glu Trp Thr Val Pro Ile Arg Met
            965             970             975
Glu Gly Ala Ala Trp Pro Gly Ala Gly Thr Gly Glu Leu Leu Trp Asp
            980             985             990
Val His Ser His Val Val Arg Glu Thr Thr Gln Arg Thr Tyr Thr Tyr
    995             1000            1005
Gln Ala Ile Asp Thr His Thr Ala Arg Pro Pro Ser Met Gln Val Thr
    1010            1015            1020
Ile Glu Asp Val Gln Ala Gln Thr Gly Gly Thr Ala Gln Phe Glu Ala
1025            1030            1035                    1040
Ile Ile Glu Gly Asp Pro Gln Pro Ser Val Thr Trp Tyr Lys Asp Ser
            1045            1050            1055
Val Gln Leu Val Asp Ser Thr Arg Leu Ser Gln Gln Gln Glu Gly Thr
        1060            1065            1070
Thr Tyr Ser Leu Val Leu Arg His Val Ala Ser Lys Asp Ala Gly Val
        1075            1080            1085
Tyr Thr Cys Leu Ala Gln Asn Thr Gly Gly Gln Val Leu Cys Lys Ala
    1090            1095            1100
Glu Leu Leu Val Leu Gly Gly Asp Asn Glu Pro Asp Ser Glu Lys Gln
1105            1110            1115                    1120
Ser His Arg Arg Lys Leu His Ser Phe Tyr Glu Val Lys Glu Glu Ile
            1125            1130            1135
Gly Arg Gly Val Phe Gly Phe Val Lys Arg Val Gln His Lys Gly Asn
        1140            1145            1150
Lys Ile Leu Cys Ala Ala Lys Phe Ile Pro Leu Arg Ser Arg Thr Arg
    1155            1160            1165
Ala Gln Ala Tyr Arg Glu Arg Asp Ile Leu Ala Ala Leu Ser His Pro
    1170            1175            1180
Leu Val Thr Gly Leu Leu Asp Gln Phe Glu Thr Arg Lys Thr Leu Ile
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     1185                1190                      1195                      1200
Leu Ile Leu Glu Leu Cys Ser Ser Glu Glu Leu Leu Asp Arg Leu Tyr
                1205                1210                      1215
Arg Lys Gly Val Val Thr Glu Ala Glu Val Lys Val Tyr Ile Gln Gln
          1220                1225                      1230
Leu Val Glu Gly Leu His Tyr Leu His Ser His Gly Val Leu His Leu
          1235                1240                      1245
Asp Ile Lys Pro Ser Asn Ile Leu Met Val His Pro Ala Arg Glu Asp
     1250                1255                      1260
Ile Lys Ile Cys Asp Phe Gly Phe Ala Gln Asn Ile Thr Pro Ala Glu
1265                1270                      1275                      1280
Leu Gln Phe Ser Gln Tyr Gly Ser Pro Glu Phe Val Ser Pro Glu Ile
                1285                1290                      1295
Ile Gln Gln Asn Pro Val Ser Glu Ala Ser Asp Ile Trp Ala Met Gly
          1300                1305                      1310
Val Ile Ser Tyr Leu Ser Leu Thr Cys Ser Ser Pro Phe Ala Gly Glu
          1315                1320                      1325
Ser Asp Arg Ala Thr Leu Leu Asn Val Leu Glu Gly Arg Val Ser Trp
     1330                1335                      1340
Ser Ser Pro Met Ala Ala His Leu Ser Glu Asp Ala Lys Asp Phe Ile
1345                1350                      1355                      1360
Lys Ala Thr Leu Gln Arg Ala Pro Gln Ala Arg Pro Ser Ala Ala Gln
                1365                1370                      1375
Cys Leu Ser His Pro Trp Phe Leu Lys Ser Met Pro Ala Glu Glu Ala
                1380                1385                      1390
His Phe Ile Asn Thr Lys Gln Leu Lys Phe Leu Leu Ala Arg Ser Arg
          1395                1400                      1405
Trp Gln Arg Ser Leu Met Ser Tyr Lys Ser Ile Leu Val Met Arg Ser
     1410                1415                      1420
Ile Pro Glu Leu Leu Arg Gly Pro Pro Asp Ser Pro Ser Leu Gly Val
1425                1430                      1435                      1440
Ala Arg His Leu Cys Arg Asp Thr Gly Gly Ser Ser Ser Ser Ser Ser
                1445                1450                      1455
Ser Ser Asp Asn Glu Leu Ala Pro Phe Ala Arg Ala Lys Ser Leu Pro
          1460          .          1465                      1470
Pro Ser Pro Val Thr His Ser Pro Leu Leu His Pro Arg Gly Phe Leu
          1475                1480                      1485
Arg Pro Ser Ala Ser Leu Pro Glu Glu Ala Glu Ala Ser Glu Arg Ser
          1490                1495                      1500
Thr Glu Ala Pro Ala Pro Pro Ala Ser Pro Glu Gly Ala Gly Pro Pro
1505                1510                      1515                      1520
Ala Ala Gln Gly Cys Val Pro Arg His Ser Val Ile Arg Ser Leu Phe
                1525                1530                      1535
Tyr His Gln Ala Gly Glu Ser Pro Glu His Gly Ala Leu Ala Pro Gly
          1540                1545                      1550
Ser Arg Arg His Pro Ala Arg Arg Arg His Leu Leu Lys Gly Gly Tyr
          1555                1560                      1565
Ile Ala Gly Ala Leu Pro Gly Leu Arg Glu Pro Leu Met Glu His Arg
     1570                1575                      1580
Val Leu Glu Glu Glu Ala Ala Arg Glu Glu Gln Ala Thr Leu Leu Ala
1585                1590                      1595                      1600
Lys Ala Pro Ser Phe Glu Thr Ala Leu Arg Leu Pro Ala Ser Gly Thr
                1605                1610                      1615
His Leu Ala Pro Gly His Ser His Ser Leu Glu His Asp Ser Pro Ser
                1620                1625                      1630
Thr Pro Arg Pro Ser Ser Glu Ala Cys Gly Glu Ala Gln Arg Leu Pro
          1635                1640                      1645
Ser Ala Pro Ser Gly Gly Ala Pro Ile Arg Asp Met Gly His Pro Gln
     1650                1655                      1660
Gly Ser Lys Gln Leu Pro Ser Thr Gly Gly His Pro Gly Thr Ala Gln
1665                1670                      1675                      1680
```

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Pro Glu Arg Pro Ser Pro Asp Ser Pro Trp Gly Gln Pro Ala Pro Phe
                1685   1690   1695
Cys His Pro Lys Gln Gly Ser Ala Pro Gln Glu Gly Cys Ser Pro His
                1700   1705   1710
Pro Ala Val Ala Pro Cys Pro Pro Gly Ser Phe Pro Pro Gly Ser Cys
    1715   1720   1725
Lys Glu Ala Pro Leu Val Pro Ser Ser Pro Phe Leu Gly Gln Pro Gln
    1730   1735   1740
Ala Pro Pro Ala Pro Ala Lys Ala Ser Pro Pro Leu Asp Ser Lys Met
1745   1750   1755   1760
Gly Pro Gly Asp Ile Ser Leu Pro Gly Arg Pro Lys Pro Gly Pro Cys
                1765   1770   1775
Ser Ser Pro Gly Ser Ala Ser Gln Ala Ser Ser Ser Gln Val Ser Ser
                1780   1785   1790
Leu Arg Val Gly Ser Ser Gln Val Gly Thr Glu Pro Gly Pro Ser Leu
    1795   1800   1805
Asp Ala Glu Gly Trp Thr Gln Glu Ala Glu Asp Leu Ser Asp Ser Thr
    1810   1815   1820
Pro Thr Leu Gln Arg Pro Gln Glu Gln Ala Thr Met Arg Lys Phe Ser
1825   1830   1835   1840
Leu Gly Gly Arg Gly Gly Tyr Ala Gly Val Ala Gly Tyr Gly Thr Phe
                1845   1850   1855
Ala Phe Gly Gly Asp Ala Gly Gly Met Leu Gly Gln Gly Pro Met Trp
                1860   1865   1870
Ala Arg Ile Ala Trp Ala Val Ser Gln Ser Glu Glu Glu Gln Glu
                1875   1880   1885
Glu Ala Arg Ala Glu Ser Gln Ser Glu Glu Gln Gln Glu Ala Arg Ala
    1890   1895   1900
Glu Ser Pro Leu Pro Gln Val Ser Ala Arg Pro Val Pro Glu Val Gly
1905   1910   1915   1920
Arg Ala Pro Thr Arg Ser Ser Pro Glu Pro Thr Pro Trp Glu Asp Ile
                1925   1930   1935
Gly Gln Val Ser Leu Val Gln Ile Arg Asp Leu Ser Gly Asp Ala Glu
                1940   1945   1950
Ala Ala Asp Thr Ile Ser Leu Asp Ile Ser Glu Val Asp Pro Ala Tyr
                1955   1960   1965
Leu Asn Leu Ser Asp Leu Tyr Asp Ile Lys Tyr Leu Pro Phe Glu Phe
                1970   1975   1980
Met Ile Phe Arg Lys Val Pro Lys Ser Ala Gln Pro Glu Pro Pro Ser
    1985   1990   1995   2000
Pro Met Ala Glu Glu Glu Leu Ala Glu Phe Pro Glu Pro Thr Trp Pro
                2005   2010   2015
Trp Pro Gly Glu Leu Gly Pro His Ala Gly Leu Glu Ile Thr Glu Glu
                2020   2025   2030
Ser Glu Asp Val Asp Ala Leu Leu Ala Glu Ala Ala Val Gly Arg Lys
    2035   2040   2045
Arg Lys Trp Ser Ser Pro Ser Arg Ser Leu Phe His Phe Pro Gly Arg
    2050   2055   2060
His Leu Pro Leu Asp Glu Pro Ala Glu Leu Gly Leu Arg Glu Arg Val
2065   2070   2075   2080
Lys Ala Ser Val Glu His Ile Ser Arg Ile Leu Lys Gly Arg Pro Glu
                2085   2090   2095
Gly Leu Glu Lys Glu Gly Pro Pro Arg Lys Lys Pro Gly Leu Ala Ser
                2100   2105   2110
Phe Arg Leu Ser Gly Leu Lys Ser Trp Asp Arg Ala Pro Thr Phe Leu
    2115   2120   2125
Arg Glu Leu Ser Asp Glu Thr Val Val Leu Gly Gln Ser Val Thr Leu
    2130   2135   2140
Ala Cys Gln Val Ser Ala Gln Pro Ala Ala Gln Ala Thr Trp Ser Lys
2145   2150   2155   2160
Asp Gly Ala Pro Leu Glu Ser Ser Ser Arg Val Leu Ile Ser Ala Thr

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```
                  2165                    2170                        2175
   Leu Lys Asn Phe Gln Leu Leu Thr Ile Leu Val Val Val Ala Glu Asp
              2180                    2185                    2190
   Leu Gly Val Tyr Thr Cys Ser Val Ser Asn Ala Leu Gly Thr Val Thr
          2195                    2200                    2205
   Thr Thr Gly Val Leu Arg Lys Ala Glu Arg Pro Ser Ser Ser Pro Cys
      2210                    2215                    2220
   Pro Asp Ile Gly Glu Val Tyr Ala Asp Gly Val Leu Leu Val Trp Lys
  2225                    2230                    2235                    2240
   Pro Val Glu Ser Tyr Gly Pro Val Thr Tyr Ile Val Gln Cys Ser Leu
              2245                    2250                    2255
   Glu Gly Gly Ser Trp Thr Thr Leu Ala Ser Asp Ile Phe Asp Cys Cys
              2260                    2265                    2270
   Tyr Leu Thr Ser Lys Leu Ser Arg Gly Gly Thr Tyr Thr Phe Arg Thr
          2275                    2280                    2285
   Ala Cys Val Ser Lys Ala Gly Met Gly Pro Tyr Ser Ser Pro Ser Glu
      2290                    2295                    2300
   Gln Val Leu Leu Gly Gly Pro Ser His Leu Ala Ser Glu Glu Glu Ser
  2305                    2310                    2315                    2320
   Gln Gly Arg Ser Ala Gln Pro Leu Pro Ser Thr Lys Thr Phe Ala Phe
              2325                    2330                    2335
   Gln Thr Gln Ile Gln Arg Gly Arg Phe Ser Val Val Arg Gln Cys Trp
              2340                    2345                    2350
   Glu Lys Ala Ser Gly Arg Ala Leu Ala Ala Lys Ile Ile Pro Tyr His
          2355                    2360                    2365
   Pro Lys Asp Lys Thr Ala Val Leu Arg Glu Tyr Glu Ala Leu Lys Gly
      2370                    2375                    2380
   Leu Arg His Pro His Leu Ala Gln Leu His Ala Ala Tyr Leu Ser Pro
  2385                    2390                    2395                    2400
   Arg His Leu Val Leu Ile Leu Glu Leu Cys Ser Gly Pro Glu Leu Leu
              2405                    2410                    2415
   Pro Cys Leu Ala Glu Arg Ala Ser Tyr Ser Glu Ser Glu Val Lys Asp
              2420                    2425                    2430
   Tyr Leu Trp Gln Met Leu Ser Ala Thr Gln Tyr Leu His Asn Gln His
          2435                    2440                    2445
   Ile Leu His Leu Asp Leu Arg Ser Glu Asn Met Ile Ile Thr Glu Tyr
      2450                    2455                    2460
   Asn Leu Leu Lys Val Val Asp Leu Gly Asn Ala Gln Ser Leu Ser Gln
  2465                    2470                    2475                    2480
   Glu Lys Val Leu Pro Ser Asp Lys Phe Lys Asp Tyr Leu Glu Thr Met
              2485                    2490                    2495
   Ala Pro Glu Leu Leu Glu Gly Gln Gly Ala Val Pro Gln Thr Asp Ile
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17

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18

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19

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            Met Asp Gln Pro Gln Phe Ser Gly Ala Pro Arg Phe Leu
             1               5                      10

acc cgg ccc aag gcc ttc gtg gtg tcg gtg ggc aag gac gcc acc ctc  158
Thr Arg Pro Lys Ala Phe Val Val Ser Val Gly Lys Asp Ala Thr Leu
     15          20                  25

agc tgc cag atc gtg ggt aat ccc acg cca cag gtg agc tgg gag aag  206
Ser Cys Gln Ile Val Gly Asn Pro Thr Pro Gln Val Ser Trp Glu Lys
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gac cag cag ccg gtg acg gcc ggc gcg cgc ttc cgt ctg gcc cag gac  254
Asp Gln Gln Pro Val Thr Ala Gly Ala Arg Phe Arg Leu Ala Gln Asp
             50              55                  60

ggc gac ctc tac cgc ctc act atc ctg gac ctg gcg ctg ggc gac agt  302
Gly Asp Leu Tyr Arg Leu Thr Ile Leu Asp Leu Ala Leu Gly Asp Ser
             65              70                  75

ggg caa tac gtg tgc cgc gcg cgc aat gcc ata ggc gag gcc ttc gct  350
Gly Gln Tyr Val Cys Arg Ala Arg Asn Ala Ile Gly Glu Ala Phe Ala
             80              85              90

gcc gtg ggc ctg cag gtg gac gcg gag gcc gcg tgc gcc gag cag gcg  398
Ala Val Gly Leu Gln Val Asp Ala Glu Ala Ala Cys Ala Glu Gln Ala
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20

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Pro His Phe Leu Leu Arg Pro Thr Ser Ile Arg Val Arg Glu Gly Ser
110                 115                 120                 125

gag gcc acc ttc cgc tgc cgc gtg ggt ggc tcc ccg agg ccg gca gtg      494
Glu Ala Thr Phe Arg Cys Arg Val Gly Gly Ser Pro Arg Pro Ala Val
                130                 135                 140

agc tgg tcc aag gac ggg cgg cgc ctg ggt gag ccc gac ggc ccc cgc      542
Ser Trp Ser Lys Asp Gly Arg Arg Leu Gly Glu Pro Asp Gly Pro Arg
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gtg cgc gtg gag gag ctc ggc gag gca agt gcg ctg cgc att cgg gcg      590
Val Arg Val Glu Glu Leu Gly Glu Ala Ser Ala Leu Arg Ile Arg Ala
                160                 165                 170

gcg cgg ccg cgc gac ggc ggc act tac gag gtc cgc gcc gag aac ccg      638
Ala Arg Pro Arg Asp Gly Gly Thr Tyr Glu Val Arg Ala Glu Asn Pro
                175                 180                 185

ctg ggc gct gcc agc gcc gcc gcg gcg cta gtg gtg gac tcg gac gcc      686
Leu Gly Ala Ala Ser Ala Ala Ala Leu Val Val Asp Ser Asp Ala
190                 195                 200                 205

gcg gac acg gcc agc cgg ccc ggg acc tcc acg gcc gcg ctc ctg gcg      734
Ala Asp Thr Ala Ser Arg Pro Gly Thr Ser Thr Ala Ala Leu Leu Ala
                210                 215                 220

cac ctg cag cgg cgg cgc gag gct atg cgc gcc gag ggc gcc ccc gcc      782
His Leu Gln Arg Arg Arg Glu Ala Met Arg Ala Glu Gly Ala Pro Ala
                225                 230                 235

tca ccg ccc agc acc ggc acg cgc acc tgc acg gtg act gaa ggc aag      830
Ser Pro Pro Ser Thr Gly Thr Arg Thr Cys Thr Val Thr Glu Gly Lys
                240                 245                 250

cac gcg cgc ctc agc tgc tac gtg acc ggc gag ccc aag ccc gag acg      878
His Ala Arg Leu Ser Cys Tyr Val Thr Gly Glu Pro Lys Pro Glu Thr
255                 260                 265

gtg tgg aag aag gac ggc cag ctg gtg acc gag ggc cgg cgc cac gtg      926
Val Trp Lys Lys Asp Gly Gln Leu Val Thr Glu Gly Arg Arg His Val
270                 275                 280                 285

gtg tac gag gac gcg cag gag aac ttc gtg ctc aag atc ctc ttc tgc      974
Val Tyr Glu Asp Ala Gln Glu Asn Phe Val Leu Lys Ile Leu Phe Cys
                290                 295                 300

aag cag tcg gac cgc ggc ctc tac acc tgc acg gcg tcc aac ctc gtg      1022
Lys Gln Ser Asp Arg Gly Leu Tyr Thr Cys Thr Ala Ser Asn Leu Val
                305                 310                 315

ggc cag acc tac agc tct gtg ctg gtc gta gtg cgc gag ccc gcg gtt      1070
Gly Gln Thr Tyr Ser Ser Val Leu Val Val Val Arg Glu Pro Ala Val
                320                 325                 330

ccc ttc aaa aag cgg ctg caa gat ctg gag gtg cgg gag aag gag tcg      1118
Pro Phe Lys Lys Arg Leu Gln Asp Leu Glu Val Arg Glu Lys Glu Ser
                335                 340                 345
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gct acg ttc cta tgt gag gtg ccc cag ccg tcc act gag gcc gcg tgg      1166
Ala Thr Phe Leu Cys Glu Val Pro Gln Pro Ser Thr Glu Ala Ala Trp
350              355                  360                       365

ttc aag gag gag acg cgg ttg tgg gcg agc gcc aag tac ggc atc gag      1214
Phe Lys Glu Glu Thr Arg Leu Trp Ala Ser Ala Lys Tyr Gly Ile Glu
             370                  375                       380

gag gag ggc acc gag cgc cgc ctg acc gtg cgc aat gtc tcg gcc gac      1262
Glu Glu Gly Thr Glu Arg Arg Leu Thr Val Arg Asn Val Ser Ala Asp
             385                  390                  395

gac gac gcg gtg tac atc tgc gag acg cca gag ggc agc cgc acg gtg      1310
Asp Asp Ala Val Tyr Ile Cys Glu Thr Pro Glu Gly Ser Arg Thr Val
             400                  405                  410

gcg gag ctc gca gtc caa gga aac ctc ctc cga aag ctc cct cgg aag      1358
Ala Glu Leu Ala Val Gln Gly Asn Leu Leu Arg Lys Leu Pro Arg Lys
             415                  420                  425

acg gcg gtg cgc gtg ggc gac acg gct atg ttt tgc gtg gag ctg gcg      1406
Thr Ala Val Arg Val Gly Asp Thr Ala Met Phe Cys Val Glu Leu Ala
430                  435                  440                  445

gtc ccg gtg ggc ccc gtc cac tgg ctg cgg aac cag gag gaa gtg gtg      1454
Val Pro Val Gly Pro Val His Trp Leu Arg Asn Gln Glu Glu Val Val
                 450                  455                  460

gcg ggg ggc cgc gtg gcc atc tcc gcg gag ggc acg cgc cac aca ctg      1502
Ala Gly Gly Arg Val Ala Ile Ser Ala Glu Gly Thr Arg His Thr Leu
             465                  470                  475

acc atc tcc cag tgc tgc ctg gag gat gtg ggc cag gtg gcc ttt atg      1550
Thr Ile Ser Gln Cys Cys Leu Glu Asp Val Gly Gln Val Ala Phe Met
             480                  485                  490

gct ggc gac tgc cag acg tcc acc cgg ttc tgc gtg tcg gcc ccc agg      1598
Ala Gly Asp Cys Gln Thr Ser Thr Arg Phe Cys Val Ser Ala Pro Arg
             495                  500                  505

aag cct ccc ctg caa ccc cct gtg gat cct gtg gta aag gcc agg atg      1646
Lys Pro Pro Leu Gln Pro Pro Val Asp Pro Val Val Lys Ala Arg Met
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gag agt tcc gtg att ctc agc tgg tcc cca cca ccc cat ggg gaa cgc      1694
Glu Ser Ser Val Ile Leu Ser Trp Ser Pro Pro Pro His Gly Glu Arg
             530                  535                       540

cct gtc act atc gac ggc tac ctg gta gag aag aag aag ctt ggc acc      1742
Pro Val Thr Ile Asp Gly Tyr Leu Val Glu Lys Lys Lys Leu Gly Thr
             545                  550                  555

tac acc tgg atc agg tgc cac gag gct gaa tgg gtg gct aca cct gag      1790
Tyr Thr Trp Ile Arg Cys His Glu Ala Glu Trp Val Ala Thr Pro Glu
             560                  565                  570

ctg acc gtg gct gat gtg gcg gag gag ggg aac ttc cag ttc cga gtg      1838
Leu Thr Val Ala Asp Val Ala Glu Glu Gly Asn Phe Gln Phe Arg Val
             575                  580                  585

tcc gct ctc aac agc ttt ggt cag agt ccc tac ctc gag ttc ccg ggg      1886
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22

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      Thr Val His Leu Ala Pro Lys Leu Ala Val Arg Thr Pro Leu Lys Ala
                      610             615             620

      gtg cag gcg gta gag ggt ggc gag gtc act ttc tcc gtg gac ctc acg   1982
      Val Gln Ala Val Glu Gly Gly Glu Val Thr Phe Ser Val Asp Leu Thr
                  625             630             635

      gtg gcc tca gcg ggt gag tgg ttc ctg gat ggg cag gcc ctg aag gcc   2030
      Val Ala Ser Ala Gly Glu Trp Phe Leu Asp Gly Gln Ala Leu Lys Ala
                  640             645             650

      agc agt gtg tat gag atc cac tgt gat cgc acc cgg cac acg ctc acc   2078
      Ser Ser Val Tyr Glu Ile His Cys Asp Arg Thr Arg His Thr Leu Thr
                  655             660             665

      atc cgg gag gtg ccc gcc agc ctg cac ggg gcg cag ctg aag ttc gtg   2126
      Ile Arg Glu Val Pro Ala Ser Leu His Gly Ala Gln Leu Lys Phe Val
      670             675             680             685

      gcc aac ggc att gag agc agc atc cgg atg gag gtc cgg gcg gcc cca   2174
      Ala Asn Gly Ile Glu Ser Ser Ile Arg Met Glu Val Arg Ala Ala Pro
                      690             695             700

      ggg ctg act gcc aac aag ccg cca gcc gca gct gcc cgg gag gtg ctg   2222
      Gly Leu Thr Ala Asn Lys Pro Pro Ala Ala Ala Ala Arg Glu Val Leu
                      705             710             715

      gct cgg ctg cac gag gag gcg cag ctg ctg gct gag ctg tca gat cag   2270
      Ala Arg Leu His Glu Glu Ala Gln Leu Leu Ala Glu Leu Ser Asp Gln
                  720             725             730

      gct gcg gct gtg acg tgg ctg aag gat ggt cgc aca ctg tcc cca ggc   2318
      Ala Ala Ala Val Thr Trp Leu Lys Asp Gly Arg Thr Leu Ser Pro Gly
                  735             740             745

      ccc aag tat gag gtg cag gca tcg gcc ggg cgg cgg gtg ctc ctt gtg   2366
      Pro Lys Tyr Glu Val Gln Ala Ser Ala Gly Arg Arg Val Leu Leu Val
      750             755             760             765

      cga gat gtg gcc cgg gac gat gca ggc ctc tac gag tgc gtc agc cgc   2414
      Arg Asp Val Ala Arg Asp Asp Ala Gly Leu Tyr Glu Cys Val Ser Arg
                      770             775             780

      ggg ggc cgc atc gcc tac cag ctc tcc gtg caa ggc ctc gcg cgc ttt   2462
      Gly Gly Arg Ile Ala Tyr Gln Leu Ser Val Gln Gly Leu Ala Arg Phe
                      785             790             795

      ctg cac aag gac atg gcg ggc agc tgt gtg gat gcc gtg gct ggg ggc   2510
      Leu His Lys Asp Met Ala Gly Ser Cys Val Asp Ala Val Ala Gly Gly
                  800             805             810

      ccg gcg cag ttt gag tgt gag acc tcc gaa gcc cac gtc cac gtg cac   2558
      Pro Ala Gln Phe Glu Cys Glu Thr Ser Glu Ala His Val His Val His
      815             820             825

      tgg tac aag gat ggc atg gag ctg ggc cac tcc ggt gag cgc ttc ttg   2606
      Trp Tyr Lys Asp Gly Met Glu Leu Gly His Ser Gly Glu Arg Phe Leu
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cag gag gat gtg ggg acg cgg cac cgg ctg gtg gca gcc aca gtc acc        2654
Gln Glu Asp Val Gly Thr Arg His Arg Leu Val Ala Ala Thr Val Thr
            850                     855                     860

agg cag gat gaa ggc acc tac tcc tgc cgc gtg ggc gag gac tct gtg        2702
Arg Gln Asp Glu Gly Thr Tyr Ser Cys Arg Val Gly Glu Asp Ser Val
            865                     870                     875

gac ttc cgg ctc cgc gtc tct gag ccc aag gtg gtg ttt gct aag gag        2750
Asp Phe Arg Leu Arg Val Ser Glu Pro Lys Val Val Phe Ala Lys Glu
            880                     885                     890

cag ctg gca cgc agg aag ctg cag gca gag gca gga gcc agt gcc aca        2798
Gln Leu Ala Arg Arg Lys Leu Gln Ala Glu Ala Gly Ala Ser Ala Thr
            895                     900                     905

ctg agc tgc gag gtg gcc cag gcc cag acg gag gtg acg tgg tac aag        2846
Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys
910                     915                     920                     925

gat ggg aag aag ctg agc tcc agc tcg aaa gtg tgc atg gag gcc aca        2894
Asp Gly Lys Lys Leu Ser Ser Ser Ser Lys Val Cys Met Glu Ala Thr
                        930                     935                     940

ggc tgc acg cgc agg ctg gtt gtg cag cag gca ggc cag gcg gat gcc        2942
Gly Cys Thr Arg Arg Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala
            945                     950                     955

ggg gag tat agc tgc gag gct ggg ggc cag cgg ctc tcc ttc cat ctg        2990
Gly Glu Tyr Ser Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe His Leu
            960                     965                     970

gat gtc aaa gag ccc aag gtg gtg ttt gcc aag gac cag gtg gca cac        3038
Asp Val Lys Glu Pro Lys Val Val Phe Ala Lys Asp Gln Val Ala His
            975                     980                     985

agt gag gtg cag gct gag gca ggg gcc aat gcc acg ctg agc tgc gag        3086
Ser Glu Val Gln Ala Glu Ala Gly Ala Asn Ala Thr Leu Ser Cys Glu
990                     995                     1000                    1005

gtg gcc cag gcc cag gcg gag gtg atg tgg tac aaa gat ggg aag aag        3134
Val Ala Gln Ala Gln Ala Glu Val Met Trp Tyr Lys Asp Gly Lys Lys
                        1010                    1015                    1020

ctg agc tcc agc ttg aaa gtg cat gta gag gcc aaa ggc tgc aga cgg        3182
Leu Ser Ser Ser Leu Lys Val His Val Glu Ala Lys Gly Cys Arg Arg
                        1025                    1030                    1035

agg ctg gtg gtg cag cag gca ggc aag acg gat gcc ggg gac tac agc        3230
Arg Leu Val Val Gln Gln Ala Gly Lys Thr Asp Ala Gly Asp Tyr Ser
            1040                    1045                    1050

tgc gag gcc agg ggc cag agg gtc tcc ttc cgc ctg cac atc aca gag        3278
Cys Glu Ala Arg Gly Gln Arg Val Ser Phe Arg Leu His Ile Thr Glu
    1055                    1060                    1065

ccc aag atg atg ttt gca aag gag cag tca gtg cat aat gag gtg cag        3326
Pro Lys Met Met Phe Ala Lys Glu Gln Ser Val His Asn Glu Val Gln
1070                    1075                    1080                    1085
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gct gag gcg ggg gcc agt gcc atg ctg agc tgt gag gtg gcc cag gcc     3374
Ala Glu Ala Gly Ala Ser Ala Met Leu Ser Cys Glu Val Ala Gln Ala
            1090            1095            1100

cag acg gag gtg acg tgg tac aag gat ggg aag aag ctg agc tcc agc     3422
Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser Ser
            1105            1110            1115

tca aaa gtg ggc atg gag gtc aaa ggg tgc aca cgg agg ctg gtg ctg     3470
Ser Lys Val Gly Met Glu Val Lys Gly Cys Thr Arg Arg Leu Val Leu
            1120            1125            1130

cca cag gcg ggc aaa gca gat gct ggg gag tac agc tgt gag gct ggg     3518
Pro Gln Ala Gly Lys Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly
            1135            1140            1145

ggc cag aga gtc tcc ttc cac ctg cac atc aca gag ccc aag ggg gtg     3566
Gly Gln Arg Val Ser Phe His Leu His Ile Thr Glu Pro Lys Gly Val
1150            1155            1160            1165

ttt gcg aag gag cag tca gtg cat aat gag gtg cag gct gag gcg ggg     3614
Phe Ala Lys Glu Gln Ser Val His Asn Glu Val Gln Ala Glu Ala Gly
            1170            1175            1180

acc act gcc atg ctg agc tgt gag gtg gcc cag ccc cag acg gag gtg     3662
Thr Thr Ala Met Leu Ser Cys Glu Val Ala Gln Pro Gln Thr Glu Val
            1185            1190            1195

acg tgg tac aag gac ggg aag aag ctg agc tcc agc tca aaa gta cgc     3710
Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser Ser Ser Lys Val Arg
            1200            1205            1210

atg gag gtc aag ggc tgc aca cga agg ctg gta gtg cag cag gtg ggc     3758
Met Glu Val Lys Gly Cys Thr Arg Arg Leu Val Val Gln Gln Val Gly
            1215            1220            1225

aaa gca gat gct ggg gag tac agc tgc gag gct ggg ggc cag aga gtc     3806
Lys Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly Gly Gln Arg Val
1230            1235            1240            1245

tcc ttt caa ctg cac atc aca gag ccc aag gca gtg ttt gcc aag gag     3854
Ser Phe Gln Leu His Ile Thr Glu Pro Lys Ala Val Phe Ala Lys Glu
            1250            1255            1260

cag ttg gtg cat aat gag gtg cgg act gag gca ggg gcc agt gcc aca     3902
Gln Leu Val His Asn Glu Val Arg Thr Glu Ala Gly Ala Ser Ala Thr
            1265            1270            1275

ctg agc tgt gag gtg gcc cag gcc cag aca gag gtg acg tgg tac aag     3950
Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys
            1280            1285            1290

gat ggg aag aag ctg agc tcc agt tcg aaa gtg cgc ata gag gct gcg     3998
Asp Gly Lys Lys Leu Ser Ser Ser Ser Lys Val Arg Ile Glu Ala Ala
            1295            1300            1305

ggc tgc atg cgg cag ctg gtg gtg cag cag gca ggc cag gca gat gct     4046
Gly Cys Met Arg Gln Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala
1310            1315            1320            1325
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25

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ggg gag tac acc tgt gag gct ggg ggc cag cgg ctc tcc ttc cac ctg      4094
Gly Glu Tyr Thr Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe His Leu
                1330                    1335                1340

gat gtt tca gag ccc aag gcg gtg ttt gca aag gag cag ctg gca cac      4142
Asp Val Ser Glu Pro Lys Ala Val Phe Ala Lys Glu Gln Leu Ala His
                1345                    1350                1355

agg aag gtg cag gcc gag gcg ggg gcc att gcc acg ctg agc tgc gag      4190
Arg Lys Val Gln Ala Glu Ala Gly Ala Ile Ala Thr Leu Ser Cys Glu
                1360                    1365                1370

gtg gcc cag gcc cag aca gag gtg acg tgg tac aag gac ggg aag aag      4238
Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys Lys
                1375                    1380                1385

ctg agc tcc agc tcg aaa gtt cga atg gag gct gtg ggc tgc aca cgg      4286
Leu Ser Ser Ser Ser Lys Val Arg Met Glu Ala Val Gly Cys Thr Arg
1390                    1395                    1400                1405

agg ctg gtg gtg cag cag gca tgc cag gcg gac acc ggg gag tat agc      4334
Arg Leu Val Val Gln Gln Ala Cys Gln Ala Asp Thr Gly Glu Tyr Ser
                1410                    1415                1420

tgc gag gcc ggg ggc cag cgg ctc tcc ttc agc ctg gac gtg gca gag      4382
Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe Ser Leu Asp Val Ala Glu
                1425                    1430                1435

ccc aag gtg gtg ttt gcc aag gag cag cca gtg cac agg gag gtg cag      4430
Pro Lys Val Val Phe Ala Lys Glu Gln Pro Val His Arg Glu Val Gln
                1440                    1445                1450

gcc cag gcg ggg gcc agc acc aca ctc agc tgc gag gtg gct cag gcc      4478
Ala Gln Ala Gly Ala Ser Thr Thr Leu Ser Cys Glu Val Ala Gln Ala
                1455                    1460                1465

cag acg gag gtg atg tgg tac aag gac ggg aag aag ctg agc ttc agc      4526
Gln Thr Glu Val Met Trp Tyr Lys Asp Gly Lys Lys Leu Ser Phe Ser
1470                    1475                    1480                1485

tcg aaa gtg cgc atg gag gct gtg ggc tgc aca cgg agg ctg gtg gtg      4574
Ser Lys Val Arg Met Glu Ala Val Gly Cys Thr Arg Arg Leu Val Val
                1490                    1495                1500

cag cag gcg ggc cag gcg gac gcc ggg gag tac agc tgc gag gcg ggg      4622
Gln Gln Ala Gly Gln Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly
                1505                    1510                1515

agc cag cgg ctc tcc ttc cac ctg cac gtg gca gag ccc aag gcg gtg      4670
Ser Gln Arg Leu Ser Phe His Leu His Val Ala Glu Pro Lys Ala Val
                1520                    1525                1530

ttt gcc aag gag cag cca gcg agc agg gag gtg cag gct gag gcg ggg      4718
Phe Ala Lys Glu Gln Pro Ala Ser Arg Glu Val Gln Ala Glu Ala Gly
                1535                    1540                1545

acc agt gcc acg ctg agc tgc gag gtg gcc cag gcc cag aca gag gtg      4766
Thr Ser Ala Thr Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val
1550                    1555                    1560                1565

acg tgg tac aag gac ggg aag aaa ctg agc tcc agc tcg aaa gtg cga      4814
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     Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser Ser Ser Lys Val Arg
              1570                  1575              1580

atg gag gcc gtg ggc tgc aca cgg agg ctg gtg gtg cag gag gca ggc    4862
Met Glu Ala Val Gly Cys Thr Arg Arg Leu Val Val Gln Glu Ala Gly
             1585                  1590              1595

cag gcg gac gcc ggg gag tac agc tgc aag gcc ggg gat cag cgg ctg    4910
Gln Ala Asp Ala Gly Glu Tyr Ser Cys Lys Ala Gly Asp Gln Arg Leu
         1600                  1605              1610

tcc ttc cac ctg cac gtg gca gag ccc aag gtg gtg ttt gcc aag gag    4958
Ser Phe His Leu His Val Ala Glu Pro Lys Val Val Phe Ala Lys Glu
         1615                  1620              1625

cag cca gca cac agg gag gtg cag gct gag gcg ggg gcc agt gcc acg    5006
Gln Pro Ala His Arg Glu Val Gln Ala Glu Ala Gly Ala Ser Ala Thr
1630                  1635              1640              1645

ctg agc tgc gag gtg gcc cag gcc cag aca gag gtg acg tgg tac aag    5054
Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys
             1650                  1655              1660

gat ggg aag aag ctg agt tcc agc tcg aaa gtg cgc gtg gag gcc gtg    5102
Asp Gly Lys Lys Leu Ser Ser Ser Ser Lys Val Arg Val Glu Ala Val
             1665                  1670              1675

ggc tgc aca cgg agg ctg gtg gtg cag cag gcg ggc cag gcg gat gct    5150
Gly Cys Thr Arg Arg Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala
         1680                  1685              1690

ggg gag tac agc tgt gag gcg ggg ggc caa cgg ctg tcc ttc cgc ctg    5198
Gly Glu Tyr Ser Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe Arg Leu
         1695                  1700              1705

cac gtg gca gag ctg gag ccc caa att tca gag aga ccc tgc cgc agg    5246
His Val Ala Glu Leu Glu Pro Gln Ile Ser Glu Arg Pro Cys Arg Arg
1710                  1715              1720              1725

gag cct ctg gtg gtc aag gag cat gaa gac atc atc ctg acc gcc aca    5294
Glu Pro Leu Val Val Lys Glu His Glu Asp Ile Ile Leu Thr Ala Thr
             1730                  1735              1740

ctg gcc aca ccc tct gcg gcc acg gtg acc tgg ctc aag gat ggt gtg    5342
Leu Ala Thr Pro Ser Ala Ala Thr Val Thr Trp Leu Lys Asp Gly Val
             1745                  1750              1755

gag att cgc cgc agc aag cgg cat gag aca gcc agc cag ggg gac acc    5390
Glu Ile Arg Arg Ser Lys Arg His Glu Thr Ala Ser Gln Gly Asp Thr
         1760                  1765              1770

cac acc ctg acc gtg cat ggc gcc cag gtt ctg gac agc gcc atc tac    5438
His Thr Leu Thr Val His Gly Ala Gln Val Leu Asp Ser Ala Ile Tyr
1775                  1780              1785

agc tgc cgt gtg ggc gca gag ggg cag gac ttc cca gtg cag gtg gaa    5486
Ser Cys Arg Val Gly Ala Glu Gly Gln Asp Phe Pro Val Gln Val Glu
1790                  1795              1800              1805

gag gtg gcc gcc aag ttc tgc cgg ctg ctg gag cct gtg tgc ggc gag    5534
Glu Val Ala Ala Lys Phe Cys Arg Leu Leu Glu Pro Val Cys Gly Glu
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ctg ggt ggc acg gtg aca ctg gcc tgc gag cta agc cca gcg tgt gca    5582
Leu Gly Gly Thr Val Thr Leu Ala Cys Glu Leu Ser Pro Ala Cys Ala
        1825                1830                1835

gag gtg gtg tgg cgc tgc ggc aac acg cag cct cgg gtg ggc aag cgc    5630
Glu Val Val Trp Arg Cys Gly Asn Thr Gln Pro Arg Val Gly Lys Arg
        1840                1845                1850

ttc cag atg gtg gcc gag ggg ccc gtg cgc tca ctc act gtg ttg ggg    5678
Phe Gln Met Val Ala Glu Gly Pro Val Arg Ser Leu Thr Val Leu Gly
        1855                1860                1865

ctg cgc gca gag gac gca ggg gag tac gtg tgt gag agc cgt gat gac    5726
Leu Arg Ala Glu Asp Ala Gly Glu Tyr Val Cys Glu Ser Arg Asp Asp
1870                1875                1880                1885

cac acc agt gcg cag ctc acc gtc agt gtg ccc cga gtg gtg aag ttt    5774
His Thr Ser Ala Gln Leu Thr Val Ser Val Pro Arg Val Val Lys Phe
                1890                1895                1900

atg tct ggg ctg agc acc gtg gtc gca gag gag ggc ggc gag gcc acc    5822
Met Ser Gly Leu Ser Thr Val Val Ala Glu Glu Gly Gly Glu Ala Thr
                1905                1910                1915

ttc cag tgc gtg gtg tcc ccc agt gat gtg gca gtc gtg tgg ttc cgg    5870
Phe Gln Cys Val Val Ser Pro Ser Asp Val Ala Val Val Trp Phe Arg
        1920                1925                1930

gac ggt gcc ctg ctt cag ccc agc gag aag ttt gcc ata tca cag agt    5918
Asp Gly Ala Leu Leu Gln Pro Ser Glu Lys Phe Ala Ile Ser Gln Ser
        1935                1940                1945

ggc gcc agc cac agc ctg acc atc tca gac ctg gtg ctg gag gac gcg    5966
Gly Ala Ser His Ser Leu Thr Ile Ser Asp Leu Val Leu Glu Asp Ala
1950                1955                1960                1965

ggc cag atc acc gtg gag gct gag ggc gcc tca tcc tct gct gcc ctg    6014
Gly Gln Ile Thr Val Glu Ala Glu Gly Ala Ser Ser Ser Ala Ala Leu
                1970                1975                1980

agg gtc cga gag gcg cct gtg ctg ttc aaa aag aag ctg gag ccg cag    6062
Arg Val Arg Glu Ala Pro Val Leu Phe Lys Lys Lys Leu Glu Pro Gln
                1985                1990                1995

acg gtg gag gag cgg agc tcg gtg acc ctg gag gtg gag ctg acg cgg    6110
Thr Val Glu Glu Arg Ser Ser Val Thr Leu Glu Val Glu Leu Thr Arg
        2000                2005                2010

ccg tgg ccg gag ctg agg tgg aca cgg aac gcg acg gcc ctg gcg ccg    6158
Pro Trp Pro Glu Leu Arg Trp Thr Arg Asn Ala Thr Ala Leu Ala Pro
2015                2020                2025

gga aag aac gtg gag atc cac gcc gag ggc gcc cgc cac cgc ctg gtt    6206
Gly Lys Asn Val Glu Ile His Ala Glu Gly Ala Arg His Arg Leu Val
2030                2035                2040                2045

ctg cac aac gta ggt ttt gcc gac cgt ggc ttc ttt ggc tgc gag acg    6254
Leu His Asn Val Gly Phe Ala Asp Arg Gly Phe Phe Gly Cys Glu Thr
                2050                2055                2060
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ccg gat gac aag aca cag gcc aaa ctc acc gtg gag atg cgc cag gta      6302
Pro Asp Asp Lys Thr Gln Ala Lys Leu Thr Val Glu Met Arg Gln Val
        2065              2070               2075

cgg ctc gta cgg ggc ctg cag gca gtg gag gca cgg gag cag ggc acg      6350
Arg Leu Val Arg Gly Leu Gln Ala Val Glu Ala Arg Glu Gln Gly Thr
        2080              2085               2090

gct acc atg gag gtg cag ctg tcg cat gcg gac gtg gat ggc agc tgg      6398
Ala Thr Met Glu Val Gln Leu Ser His Ala Asp Val Asp Gly Ser Trp
        2095              2100               2105

act cgt gac ggt ctg cgg ttc cag cag ggg ccc acg tgc cac ctg gct      6446
Thr Arg Asp Gly Leu Arg Phe Gln Gln Gly Pro Thr Cys His Leu Ala
2110              2115               2120               2125

gtg cgg ggc ccc atg cac acc ctc aca ctc tcg ggg ctg cgg cca gag      6494
Val Arg Gly Pro Met His Thr Leu Thr Leu Ser Gly Leu Arg Pro Glu
                  2130               2135               2140

gat agt ggc ctt atg gtc ttc aag gcc gaa gga gtg cac acg tcg gcg      6542
Asp Ser Gly Leu Met Val Phe Lys Ala Glu Gly Val His Thr Ser Ala
                  2145               2150               2155

cgg ctc gtg gtc acc gag ctt ccc gtg agc ttc agc cgc ccg ctg cag      6590
Arg Leu Val Val Thr Glu Leu Pro Val Ser Phe Ser Arg Pro Leu Gln
        2160               2165               2170

gac gtg gtg acc act gag aag gag aag gtt acc ctg gag tgc gag ctg      6638
Asp Val Val Thr Thr Glu Lys Glu Lys Val Thr Leu Glu Cys Glu Leu
        2175               2180               2185

tcg cgt cct aat gtg gat gtg cgc tgg ctg aag gac ggt gtg gag ctg      6686
Ser Arg Pro Asn Val Asp Val Arg Trp Leu Lys Asp Gly Val Glu Leu
2190               2195               2200               2205

cgg gca ggc aag acg atg gcc atc gca gcc cag ggc gcc tgc agg agc      6734
Arg Ala Gly Lys Thr Met Ala Ile Ala Ala Gln Gly Ala Cys Arg Ser
                  2210               2215               2220

ctc acc att tac cgg tgc gag ttc gcg gat cag gga gtg tat gtg tgt      6782
Leu Thr Ile Tyr Arg Cys Glu Phe Ala Asp Gln Gly Val Tyr Val Cys
                  2225               2230               2235

gat gcc cat gat gcc cag agc tct gcc tcc gtg aag gta caa gga agg      6830
Asp Ala His Asp Ala Gln Ser Ser Ala Ser Val Lys Val Gln Gly Arg
        2240               2245               2250

aca tac act ctc atc tac cgg aga gtc ctg gcg gaa gat gca gga gag      6878
Thr Tyr Thr Leu Ile Tyr Arg Arg Val Leu Ala Glu Asp Ala Gly Glu
        2255               2260               2265

atc caa ttt gta gcc gaa aat gca gaa tcg cga gcc cag ctc cga gtg      6926
Ile Gln Phe Val Ala Glu Asn Ala Glu Ser Arg Ala Gln Leu Arg Val
2270               2275               2280               2285

aag gag ctg cca gtg acc ctc gtg cgc ccg ctg cgg gac aag att gcc      6974
Lys Glu Leu Pro Val Thr Leu Val Arg Pro Leu Arg Asp Lys Ile Ala
                  2290               2295               2300
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atg gag aag cac cgc ggt gtg ctg gag tgt cag gtg tcc cgg gcc agc      7022
Met Glu Lys His Arg Gly Val Leu Glu Cys Gln Val Ser Arg Ala Ser
        2305            2310            2315

gcc cag gtg cgg tgg ttc aag ggc agt cag gag ctg cag ccc ggg ccc      7070
Ala Gln Val Arg Trp Phe Lys Gly Ser Gln Glu Leu Gln Pro Gly Pro
        2320            2325            2330

aag tac gag ctg gtc agt gat ggc ctc tac cgc aag ctg atc atc agt      7118
Lys Tyr Glu Leu Val Ser Asp Gly Leu Tyr Arg Lys Leu Ile Ile Ser
        2335            2340            2345

gat gtc cac gca gag gac gag gac acc tac acc tgt gac gcc ggt gat      7166
Asp Val His Ala Glu Asp Glu Asp Thr Tyr Thr Cys Asp Ala Gly Asp
2350            2355            2360            2365

gtc aag acc agt gca cag ttc ttc gtg gaa gag caa tcc atc acc att      7214
Val Lys Thr Ser Ala Gln Phe Phe Val Glu Glu Gln Ser Ile Thr Ile
        2370            2375            2380

gtg cgg ggt ctg cag gac gtg aca gtg atg gag ccc gct cct gcc tgg      7262
Val Arg Gly Leu Gln Asp Val Thr Val Met Glu Pro Ala Pro Ala Trp
        2385            2390            2395

ttt gag tgt gag acc tcc atc ccc tca gtg cgg cca cct aag tgg ctc      7310
Phe Glu Cys Glu Thr Ser Ile Pro Ser Val Arg Pro Pro Lys Trp Leu
        2400            2405            2410

ctg ggg aag acg gtg ttg cag gct ggg ggg aac gtg ggc ctg gag cag      7358
Leu Gly Lys Thr Val Leu Gln Ala Gly Gly Asn Val Gly Leu Glu Gln
        2415            2420            2425

gag ggc acg gtg cac cgg ctg atg ctg cgg cgg acc tgc tcc acc atg      7406
Glu Gly Thr Val His Arg Leu Met Leu Arg Arg Thr Cys Ser Thr Met
2430            2435            2440            2445

acc ggg ccc gtg cac ttc acc gtt ggc aag tcg cgc tcc tct gcc cgc      7454
Thr Gly Pro Val His Phe Thr Val Gly Lys Ser Arg Ser Ser Ala Arg
        2450            2455            2460

ctg gtg gtc tca gac atc ccc gta gtc ctc aca cgg ccg ttg gag ccc      7502
Leu Val Val Ser Asp Ile Pro Val Val Leu Thr Arg Pro Leu Glu Pro
        2465            2470            2475

aag aca ggg cgt gag ctg cag tca gtg gtc ctg tcc tgc gac ttc cgg      7550
Lys Thr Gly Arg Glu Leu Gln Ser Val Val Leu Ser Cys Asp Phe Arg
        2480            2485            2490

cca gcc ccc aag gct gtg cag tgg tac aag gat gac acg ccc ctg tct      7598
Pro Ala Pro Lys Ala Val Gln Trp Tyr Lys Asp Asp Thr Pro Leu Ser
        2495            2500            2505

ccc tct gag aag ttt aag atg agc ctg gag ggt cag atg gct gag ctg      7646
Pro Ser Glu Lys Phe Lys Met Ser Leu Glu Gly Gln Met Ala Glu Leu
2510            2515            2520            2525

cgc atc ctc cgg ctc atg cct gct gat gct ggt gtc tac cgg tgc cag      7694
Arg Ile Leu Arg Leu Met Pro Ala Asp Ala Gly Val Tyr Arg Cys Gln
        2530            2535            2540

gcg ggc agt gcc cac agc agc act gag gtc act gtg gaa gcg cgg gag      7742
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Ala Gly Ser Ala His Ser Ser Thr Glu Val Thr Val Glu Ala Arg Glu
        2545                2550                2555

gtg aca gtg aca ggg ccg cta cag gat gca gag gcc acg gag gag ggc    7790
Val Thr Val Thr Gly Pro Leu Gln Asp Ala Glu Ala Thr Glu Glu Gly
        2560                2565                2570

tgg gcc agc ttc tcc tgt gag ctg tcc cac gag gat gag gag gtc gag    7838
Trp Ala Ser Phe Ser Cys Glu Leu Ser His Glu Asp Glu Glu Val Glu
        2575                2580                2585

tgg tcg ctc aac ggg atg ccc ctg tac aac gac agc ttc cat gag atc    7886
Trp Ser Leu Asn Gly Met Pro Leu Tyr Asn Asp Ser Phe His Glu Ile
2590                2595                2600                2605

tca cac aag ggc cgg cgc cac acg ctg gta ctg aag agc atc cag cgg    7934
Ser His Lys Gly Arg Arg His Thr Leu Val Leu Lys Ser Ile Gln Arg
                2610                2615                2620

gct gat gcg ggc ata gta cgc gcc tcc tcc ctg aag gtg tcg acc tct    7982
Ala Asp Ala Gly Ile Val Arg Ala Ser Ser Leu Lys Val Ser Thr Ser
                2625                2630                2635

gcc cgc ctg gag gtc cga gtg aag ccg gtg gtg ttc ctg aag gcg ctg    8030
Ala Arg Leu Glu Val Arg Val Lys Pro Val Val Phe Leu Lys Ala Leu
            2640                2645                2650

gat gac ctg tcc gca gag gag cgc ggc acc ctg gcc ctg cag tgt gaa    8078
Asp Asp Leu Ser Ala Glu Glu Arg Gly Thr Leu Ala Leu Gln Cys Glu
            2655                2660                2665

gtc tct gac ccc gag gcc cat gtg gtg tgg cgc aaa gat ggc gtg cag    8126
Val Ser Asp Pro Glu Ala His Val Val Trp Arg Lys Asp Gly Val Gln
2670                2675                2680                2685

ctg ggc ccc agt gac aag tat gac ttc ctg cac acg gcg ggc acg cgg    8174
Leu Gly Pro Ser Asp Lys Tyr Asp Phe Leu His Thr Ala Gly Thr Arg
                2690                2695                2700

ggg ctc gtg gtg cat gac gtg agc cct gaa gac gcc ggc ctg tac acc    8222
Gly Leu Val Val His Asp Val Ser Pro Glu Asp Ala Gly Leu Tyr Thr
                2705                2710                2715

tgc cac gtg ggc tcc gag gag acc cgg gcc cgg gtc cgc gtg cac gat    8270
Cys His Val Gly Ser Glu Glu Thr Arg Ala Arg Val Arg Val His Asp
        2720                2725                2730

ctg cac gtg ggc atc acc aag agg ctg aag aca atg gag gtg ctg gaa    8318
Leu His Val Gly Ile Thr Lys Arg Leu Lys Thr Met Glu Val Leu Glu
        2735                2740                2745

ggg gaa agc tgc agc ttt gag tgc gtc ctg tcc cac gag agt gcc agc    8366
Gly Glu Ser Cys Ser Phe Glu Cys Val Leu Ser His Glu Ser Ala Ser
2750                2755                2760                2765

gac ccg gcc atg tgg aca gtc ggt ggg aag aca gtg ggc agc tcc agc    8414
Asp Pro Ala Met Trp Thr Val Gly Gly Lys Thr Val Gly Ser Ser Ser
                2770                2775                2780

cgc ttc cag gcc aca cgt cag ggc cga aaa tac atc ctg gtg gtc cgg    8462
Arg Phe Gln Ala Thr Arg Gln Gly Arg Lys Tyr Ile Leu Val Val Arg
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gag gct gca cca agt gat gcc ggg gag gtg gtc ttc tct gtg cgg ggc   8510
Glu Ala Ala Pro Ser Asp Ala Gly Glu Val Val Phe Ser Val Arg Gly
        2800   2805   2810

ctc acc tcc aag gcc tca ctc att gtc aga gag agg ccg gcc gcc atc   8558
Leu Thr Ser Lys Ala Ser Leu Ile Val Arg Glu Arg Pro Ala Ala Ile
    2815   2820   2825

atc aag ccc ctg gaa gac cag tgg gtg gcg cca ggg gag gac gtg gag   8606
Ile Lys Pro Leu Glu Asp Gln Trp Val Ala Pro Gly Glu Asp Val Glu
2830   2835   2840   2845

ctg cgc tgt gag ctg tca cgg gcg gga acg ccc gtg cac tgg ctg aag   8654
Leu Arg Cys Glu Leu Ser Arg Ala Gly Thr Pro Val His Trp Leu Lys
                2850   2855   2860

gac agg aag gcc atc cgc aag agc cag aag tat gat gtg gtc tgc gag   8702
Asp Arg Lys Ala Ile Arg Lys Ser Gln Lys Tyr Asp Val Val Cys Glu
            2865   2870   2875

ggc acg atg gcc atg ctg gtc atc cgc ggg gcc tcg ctc aag gac gcg   8750
Gly Thr Met Ala Met Leu Val Ile Arg Gly Ala Ser Leu Lys Asp Ala
        2880   2885   2890

ggc gag tac acg tgt gag gtg gag gct tcc aag agc aca gcc agc ctc   8798
Gly Glu Tyr Thr Cys Glu Val Glu Ala Ser Lys Ser Thr Ala Ser Leu
    2895   2900   2905

cat gtg gaa gaa aaa gca aac tgc ttc aca gag gag ctg acc aat ctg   8846
His Val Glu Glu Lys Ala Asn Cys Phe Thr Glu Glu Leu Thr Asn Leu
2910   2915   2920   2925

cag gtg gag gag aaa ggc aca gct gtg ttc acg tgc aag acg gag cac   8894
Gln Val Glu Glu Lys Gly Thr Ala Val Phe Thr Cys Lys Thr Glu His
            2930   2935   2940

ccc gcg gcc aca gtg acc tgg cgc aag ggc ctc ttg gag cta cgg gcc   8942
Pro Ala Ala Thr Val Thr Trp Arg Lys Gly Leu Leu Glu Leu Arg Ala
        2945   2950   2955

tca ggg aag cac cag ccc agc cag gag ggc ctg acc ctg cgg ctc acc   8990
Ser Gly Lys His Gln Pro Ser Gln Glu Gly Leu Thr Leu Arg Leu Thr
        2960   2965   2970

atc agt gcc ctg gag aag gca gac agc gac acc tat acc tgc gac att   9038
Ile Ser Ala Leu Glu Lys Ala Asp Ser Asp Thr Tyr Thr Cys Asp Ile
    2975   2980   2985

ggc cag gcc cag tcc cgg gcc cag ctc cta gtg caa ggc cgg aga gtg   9086
Gly Gln Ala Gln Ser Arg Ala Gln Leu Leu Val Gln Gly Arg Arg Val
2990   2995   3000   3005

cac atc atc gag gac ctg gag gat gtg gat gtg cag gag ggc tcc tcg   9134
His Ile Ile Glu Asp Leu Glu Asp Val Asp Val Gln Glu Gly Ser Ser
            3010   3015   3020

gcc acc ttc cgt tgc cgg atc tcc ccg gcc aac tac gag cct gtg cac   9182
Ala Thr Phe Arg Cys Arg Ile Ser Pro Ala Asn Tyr Glu Pro Val His
        3025   3030   3035

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tgg ttc ctg gac aag aca ccc ctg cat gcc aac gag ctc aat gag atc       9230
Trp Phe Leu Asp Lys Thr Pro Leu His Ala Asn Glu Leu Asn Glu Ile
        3040            3045            3050

gat gcc cag ccc ggg ggc tac cac gtg ctg acc ctg cgg cag ctg gcg       9278
Asp Ala Gln Pro Gly Gly Tyr His Val Leu Thr Leu Arg Gln Leu Ala
        3055            3060            3065

ctc aag gac tcg ggc acc atc tac ttt gag gcg ggt gac cag cgg gcc       9326
Leu Lys Asp Ser Gly Thr Ile Tyr Phe Glu Ala Gly Asp Gln Arg Ala
3070            3075            3080            3085

tcg gcc gcc ctg cgg gtc act gag aag cca agc gtc ttc tcc cgg gag       9374
Ser Ala Ala Leu Arg Val Thr Glu Lys Pro Ser Val Phe Ser Arg Glu
        3090            3095            3100

ctc aca gat gcc acc atc aca gag ggt gag gac ttg acc ctg gtg tgc       9422
Leu Thr Asp Ala Thr Ile Thr Glu Gly Glu Asp Leu Thr Leu Val Cys
        3105            3110            3115

gag acc agc acc tgc gac att cct atg tgc tgg acc aag gat ggg aag       9470
Glu Thr Ser Thr Cys Asp Ile Pro Met Cys Trp Thr Lys Asp Gly Lys
        3120            3125            3130

acc ctg cgg ggg tct gcc cgg tgc cag ctg agc cat gag ggc cac cgg       9518
Thr Leu Arg Gly Ser Ala Arg Cys Gln Leu Ser His Glu Gly His Arg
        3135            3140            3145

gcc cag ctg ctc atc act ggg gcc acc ctg cag gac agt gga cgc tac       9566
Ala Gln Leu Leu Ile Thr Gly Ala Thr Leu Gln Asp Ser Gly Arg Tyr
3150            3155            3160            3165

aag tgt gag gct ggg ggc gcc tgc agc agc tcc att gtc agg gtg cat       9614
Lys Cys Glu Ala Gly Gly Ala Cys Ser Ser Ser Ile Val Arg Val His
        3170            3175            3180

gcg cgg cca gtg cgg ttc cag gag gcc ctg aag gac ctg gag gtg ctg       9662
Ala Arg Pro Val Arg Phe Gln Glu Ala Leu Lys Asp Leu Glu Val Leu
        3185            3190            3195

gag ggt ggt gct gcc aca ctg cgc tgt gtg ctg tca tct gtg gct gcg       9710
Glu Gly Gly Ala Ala Thr Leu Arg Cys Val Leu Ser Ser Val Ala Ala
        3200            3205            3210

ccc gtg aag tgg tgc tat gga aac aac gtc ctg agg cca ggt gac aaa       9758
Pro Val Lys Trp Cys Tyr Gly Asn Asn Val Leu Arg Pro Gly Asp Lys
        3215            3220            3225

tac agc cta cgc cag gag ggt gcc atg ctg gag ctg gtg gtc cgg aac       9806
Tyr Ser Leu Arg Gln Glu Gly Ala Met Leu Glu Leu Val Val Arg Asn
3230            3235            3240            3245

ctc cgg ccg cag gac agc ggg cgg tac tca tgc tcc ttc ggg gac cag       9854
Leu Arg Pro Gln Asp Ser Gly Arg Tyr Ser Cys Ser Phe Gly Asp Gln
        3250            3255            3260

act act tct gcc acc ctc aca gtg act gcc ctg cct gcc cag ttc atc       9902
Thr Thr Ser Ala Thr Leu Thr Val Thr Ala Leu Pro Ala Gln Phe Ile
        3265            3270            3275
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ggg aaa ctg aga aac aag gag gcc aca gaa ggg gcc acg gcc acg ctg        9950
Gly Lys Leu Arg Asn Lys Glu Ala Thr Glu Gly Ala Thr Ala Thr Leu
        3280                3285                3290

cgg tgt gag ctg agc aag aca gcc cct gtg gag tgg aga aag ggg tcc        9998
Arg Cys Glu Leu Ser Lys Thr Ala Pro Val Glu Trp Arg Lys Gly Ser
        3295                3300                3305

gag acc ctc aga gat ggg gac aga tac tgt ctg agg cag gac ggg gcc       10046
Glu Thr Leu Arg Asp Gly Asp Arg Tyr Cys Leu Arg Gln Asp Gly Ala
3310                3315                3320                3325

atg tgt gag ctg cag atc cgt ggc ctg gcc atg gtg gat gcc gcg gag       10094
Met Cys Glu Leu Gln Ile Arg Gly Leu Ala Met Val Asp Ala Ala Glu
        3330                3335                3340

tac tcg tgt gtg tgt gga gag gag agg acc tca gcc tca ctc acc atc       10142
Tyr Ser Cys Val Cys Gly Glu Glu Arg Thr Ser Ala Ser Leu Thr Ile
        3345                3350                3355

agg ccc atg cct gcc cac ttc ata gga aga ctg aga cac caa gag agc       10190
Arg Pro Met Pro Ala His Phe Ile Gly Arg Leu Arg His Gln Glu Ser
        3360                3365                3370

ata gaa ggg gcc aca gcc acg ctg cgg tgt gag ctg agc aag gcg gcc       10238
Ile Glu Gly Ala Thr Ala Thr Leu Arg Cys Glu Leu Ser Lys Ala Ala
        3375                3380                3385

ccc gtg gag tgg agg aag ggg cgt gag agc ctc aga gat ggg gac aga       10286
Pro Val Glu Trp Arg Lys Gly Arg Glu Ser Leu Arg Asp Gly Asp Arg
3390                3395                3400                3405

cat agc ctg agg cag gac ggg gct gtg tgc gag ctg cag atc tgt ggc       10334
His Ser Leu Arg Gln Asp Gly Ala Val Cys Glu Leu Gln Ile Cys Gly
        3410                3415                3420

ctg gct gtg gca gat gct ggg gag tac tcc tgt gtg tgt ggg gag gag       10382
Leu Ala Val Ala Asp Ala Gly Glu Tyr Ser Cys Val Cys Gly Glu Glu
        3425                3430                3435

agg acc tct gcc act ctc acc gtg aag gcc ctg cca gcc aag ttc aca       10430
Arg Thr Ser Ala Thr Leu Thr Val Lys Ala Leu Pro Ala Lys Phe Thr
        3440                3445                3450

gag ggt ctg agg aat gaa gag gcc gtg gaa ggg gcc aca gcc atg ttg       10478
Glu Gly Leu Arg Asn Glu Glu Ala Val Glu Gly Ala Thr Ala Met Leu
        3455                3460                3465

tgg tgt gaa ctg agc aag gtg gcc cct gtg gag tgg agg aag ggg ccc       10526
Trp Cys Glu Leu Ser Lys Val Ala Pro Val Glu Trp Arg Lys Gly Pro
3470                3475                3480                3485

gag aac ctc aga gat ggg gac aga tac atc ctg agg cag gag ggg acc       10574
Glu Asn Leu Arg Asp Gly Asp Arg Tyr Ile Leu Arg Gln Glu Gly Thr
        3490                3495                3500

agg tgt gag ctg cag atc tgt ggc ctg gcc atg gcg gac gcc ggg gag       10622
Arg Cys Glu Leu Gln Ile Cys Gly Leu Ala Met Ala Asp Ala Gly Glu
        3505                3510                3515

tac ttg tgt gtg tgc ggg cag gag agg acc tca gcc acg ctc acc atc       10670
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Tyr Leu Cys Val Cys Gly Gln Glu Arg Thr Ser Ala Thr Leu Thr Ile
    3520              3525             3530

agg gct ctg cct gcc agg ttc ata gaa gat gtg aaa aac cag gag gcc   10718
Arg Ala Leu Pro Ala Arg Phe Ile Glu Asp Val Lys Asn Gln Glu Ala
    3535              3540             3545

aga gaa ggg gcc acg gct gtg ctg cag tgt gag ctg aac agt gca gcc   10766
Arg Glu Gly Ala Thr Ala Val Leu Gln Cys Glu Leu Asn Ser Ala Ala
3550              3555             3560              3565

cct gtg gag tgg aga aag ggg tct gag acc ctc aga gat ggg gac aga   10814
Pro Val Glu Trp Arg Lys Gly Ser Glu Thr Leu Arg Asp Gly Asp Arg
              3570             3575             3580

tac agc ctg agg cag gac ggg act aaa tgt gag ctg cag att cgt ggc   10862
Tyr Ser Leu Arg Gln Asp Gly Thr Lys Cys Glu Leu Gln Ile Arg Gly
              3585             3590             3595

ctg gcc atg gca gac act ggg gag tac tcg tgc gtg tgc ggg cag gag   10910
Leu Ala Met Ala Asp Thr Gly Glu Tyr Ser Cys Val Cys Gly Gln Glu
              3600             3605             3610

agg acc tcg gct atg ctc acc gtc agg gct cta ccc atc aag ttc aca   10958
Arg Thr Ser Ala Met Leu Thr Val Arg Ala Leu Pro Ile Lys Phe Thr
    3615             3620             3625

gag ggt ctg agg aac gaa gag gcc aca gaa ggg gca aca gcc gtg ctg   11006
Glu Gly Leu Arg Asn Glu Glu Ala Thr Glu Gly Ala Thr Ala Val Leu
3630             3635             3640             3645

cgg tgt gag ctg agc aag atg gcc ccc gtg gag tgg tgg aag ggg cat   11054
Arg Cys Glu Leu Ser Lys Met Ala Pro Val Glu Trp Trp Lys Gly His
              3650             3655             3660

gag acc ctc aga gat gga gac aga cac agc ctg agg cag gac ggg gcc   11102
Glu Thr Leu Arg Asp Gly Asp Arg His Ser Leu Arg Gln Asp Gly Ala
              3665             3670             3675

agg tgt gag ctg cag atc cgc ggc ctc gtg gca gag gac gct ggg gag   11150
Arg Cys Glu Leu Gln Ile Arg Gly Leu Val Ala Glu Asp Ala Gly Glu
    3680             3685             3690

tac ctg tgc atg tgc ggg aag gag agg acc tca gcc atg ctc acc gtc   11198
Tyr Leu Cys Met Cys Gly Lys Glu Arg Thr Ser Ala Met Leu Thr Val
    3695             3700             3705

agg gcc atg cct tcc aag ttc ata gag ggt ctg agg aat gaa gag gcc   11246
Arg Ala Met Pro Ser Lys Phe Ile Glu Gly Leu Arg Asn Glu Glu Ala
3710             3715             3720             3725

aca gaa ggg gac acg gcc acg ctg tgg tgt gag ctg agc aag gcg gca   11294
Thr Glu Gly Asp Thr Ala Thr Leu Trp Cys Glu Leu Ser Lys Ala Ala
              3730             3735             3740

ccg gtg gag tgg agg aag ggg cat gag acc ctc aga gat ggg gac aga   11342
Pro Val Glu Trp Arg Lys Gly His Glu Thr Leu Arg Asp Gly Asp Arg
              3745             3750             3755

cac agc ctg agg cag gac ggg tcc agg tgt gag ctg cag atc cgt ggc   11390
His Ser Leu Arg Gln Asp Gly Ser Arg Cys Glu Leu Gln Ile Arg Gly

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ctg gct gtg gtg gat gcc ggg gag tac tcg tgt gtg tgc ggg cag gag   11438
Leu Ala Val Val Asp Ala Gly Glu Tyr Ser Cys Val Cys Gly Gln Glu
    3775   3780   3785

agg acc tca gcc aca ctc act gtc agg gcc ctg cct gcc aga ttc ata   11486
Arg Thr Ser Ala Thr Leu Thr Val Arg Ala Leu Pro Ala Arg Phe Ile
3790   3795   3800   3805

gaa gat gtg aaa aac cag gag gcc aga gaa ggg gcc acg gcc gtg ctg   11534
Glu Asp Val Lys Asn Gln Glu Ala Arg Glu Gly Ala Thr Ala Val Leu
            3810   3815   3820

caa tgt gag ctg agc aag gcg gcc ccc gtg gag tgg agg aag ggg tct   11582
Gln Cys Glu Leu Ser Lys Ala Ala Pro Val Glu Trp Arg Lys Gly Ser
            3825   3830   3835

gag acc ctc aga ggt ggg gac aga tac agc ctg agg cag gat ggg acc   11630
Glu Thr Leu Arg Gly Gly Asp Arg Tyr Ser Leu Arg Gln Asp Gly Thr
      3840   3845   3850

aga tgt gag ctg cag att cat ggc ctg tct gtg gca gac act ggg gag   11678
Arg Cys Glu Leu Gln Ile His Gly Leu Ser Val Ala Asp Thr Gly Glu
      3855   3860   3865

tac tcg tgt gtg tgc ggg cag gag agg acc tcg gcc aca ctc acc gtc   11726
Tyr Ser Cys Val Cys Gly Gln Glu Arg Thr Ser Ala Thr Leu Thr Val
3870   3875   3880   3885

agg gcc cca cag cca gtg ttc cgg gag ccg ctg cag agt ctg cag gcg   11774
Arg Ala Pro Gln Pro Val Phe Arg Glu Pro Leu Gln Ser Leu Gln Ala
            3890   3895   3900

gag gag ggc tcc acg gcc acc ctg cag tgt gag ctg tct gag ccc act   11822
Glu Glu Gly Ser Thr Ala Thr Leu Gln Cys Glu Leu Ser Glu Pro Thr
            3905   3910   3915

gct aca gtg gtc tgg agc aag ggt ggc ctg cag ctg cag gcc aat ggg   11870
Ala Thr Val Val Trp Ser Lys Gly Gly Leu Gln Leu Gln Ala Asn Gly
            3920   3925   3930

cgc cgg gag cca cgg ctt cag ggc tgc acc gcg gag ctg gtg tta cag   11918
Arg Arg Glu Pro Arg Leu Gln Gly Cys Thr Ala Glu Leu Val Leu Gln
      3935   3940   3945

gac cta caa cgt gaa gac act ggc gaa tac act tgc acc tgt ggc tcc   11966
Asp Leu Gln Arg Glu Asp Thr Gly Glu Tyr Thr Cys Thr Cys Gly Ser
3950   3955   3960   3965

cag gcc acc agt gcc acc ctc act gtc aca gct gcg cct gtg cgg ttc   12014
Gln Ala Thr Ser Ala Thr Leu Thr Val Thr Ala Ala Pro Val Arg Phe
            3970   3975   3980

ctc cga gag ctg cag cac cag gag gtg gat gag gga ggc acc gca cac   12062
Leu Arg Glu Leu Gln His Gln Glu Val Asp Glu Gly Gly Thr Ala His
      3985   3990   3995

tta tgc tgc gag ctg agc cgg gcg ggt gcg agc gtg gag tgg cgc aag   12110
Leu Cys Cys Glu Leu Ser Arg Ala Gly Ala Ser Val Glu Trp Arg Lys
      4000   4005   4010

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ggc tcc cta cag ctc ttc cct tgt gcc aag tac cag atg gtg cag gat      12158
Gly Ser Leu Gln Leu Phe Pro Cys Ala Lys Tyr Gln Met Val Gln Asp
    4015                4020                4025

ggt gca gct gca gag ctg ctg gta cgc gga gtg gag cag gag gat gcg      12206
Gly Ala Ala Ala Glu Leu Leu Val Arg Gly Val Glu Gln Glu Asp Ala
4030                4035                4040                4045

ggt gac tac acg tgt gac acg ggc cac acg cag agc atg gcc agc ctc      12254
Gly Asp Tyr Thr Cys Asp Thr Gly His Thr Gln Ser Met Ala Ser Leu
                4050                4055                4060

tct gtc cgt gtc ccc agg ccc aag ttc aag acc cgg ctt cag agt ctg      12302
Ser Val Arg Val Pro Arg Pro Lys Phe Lys Thr Arg Leu Gln Ser Leu
                4065                4070                4075

gag cag gag aca ggt gac ata gcc cgg ctg tgc tgt cag ctg agt gat      12350
Glu Gln Glu Thr Gly Asp Ile Ala Arg Leu Cys Cys Gln Leu Ser Asp
            4080                4085                4090

gca gag tcg ggg gcc gtg gtg caa tgg ctc aag gag ggc gtg gag ctg      12398
Ala Glu Ser Gly Ala Val Val Gln Trp Leu Lys Glu Gly Val Glu Leu
    4095                4100                4105

cat gcg ggc ccc aag tac gag atg cgg agc cag ggg gcc acg cgg gag      12446
His Ala Gly Pro Lys Tyr Glu Met Arg Ser Gln Gly Ala Thr Arg Glu
4110                4115                4120                4125

ctg ctg atc cac caa ctg gag gcc aag gac acg ggc gag tat gcc tgt      12494
Leu Leu Ile His Gln Leu Glu Ala Lys Asp Thr Gly Glu Tyr Ala Cys
                4130                4135                4140

gtg aca ggc ggc cag aaa acc gct gcc tcc ctc agg gtc aca gag cct      12542
Val Thr Gly Gly Gln Lys Thr Ala Ala Ser Leu Arg Val Thr Glu Pro
                4145                4150                4155

gag gtg acc att gta cgg ggg ctg gtt gat gcg gag gtg acg gcc gat      12590
Glu Val Thr Ile Val Arg Gly Leu Val Asp Ala Glu Val Thr Ala Asp
                4160                4165                4170

gag gat gtt gag ttc agc tgt gag gtg tcc agg gct gga gcc aca ggc      12638
Glu Asp Val Glu Phe Ser Cys Glu Val Ser Arg Ala Gly Ala Thr Gly
    4175                4180                4185

gtg cag tgg tgc cta cag ggc ctg cca ctg caa agc aat gag gtg aca      12686
Val Gln Trp Cys Leu Gln Gly Leu Pro Leu Gln Ser Asn Glu Val Thr
4190                4195                4200                4205

gag gtg gct gtg cgg gat ggc cgc atc cac acc ctg cgg ctg aag ggc      12734
Glu Val Ala Val Arg Asp Gly Arg Ile His Thr Leu Arg Leu Lys Gly
                4210                4215                4220

gtg acg ccc gag gac gct ggc act gtc tcc ttc cat ttg gga aac cat      12782
Val Thr Pro Glu Asp Ala Gly Thr Val Ser Phe His Leu Gly Asn His
                4225                4230                4235

gct tcc tct gcc cag ctc acc gtc aga gct cct gag gtg acc atc ctg      12830
Ala Ser Ser Ala Gln Leu Thr Val Arg Ala Pro Glu Val Thr Ile Leu
        4240                4245                4250
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gag ccc ctg cag gac gtg cag ctc agt gag ggc cag gat gcc agc ttc    12878
Glu Pro Leu Gln Asp Val Gln Leu Ser Glu Gly Gln Asp Ala Ser Phe
    4255             4260             4265

cag tgc cgg cta tcc aga gct tca ggc cag gag gcc cgc tgg gct tta    12926
Gln Cys Arg Leu Ser Arg Ala Ser Gly Gln Glu Ala Arg Trp Ala Leu
4270             4275             4280             4285

gga ggg gtg ccc ctg cag gcc aac gag atg aat gac atc act gtg gag    12974
Gly Gly Val Pro Leu Gln Ala Asn Glu Met Asn Asp Ile Thr Val Glu
             4290             4295             4300

cag ggc aca ctc cac ctg ctc acc ctg cac aag gtg acc ctt gag gat    13022
Gln Gly Thr Leu His Leu Leu Thr Leu His Lys Val Thr Leu Glu Asp
             4305             4310             4315

gct gga act gtc agt ttc cac gtg ggc acg tgt agc tct gag gcc cag    13070
Ala Gly Thr Val Ser Phe His Val Gly Thr Cys Ser Ser Glu Ala Gln
             4320             4325             4330

ctg aaa gtc aca gcc aag aac acg gtg gtg cgg ggg ctg gag aat gtg    13118
Leu Lys Val Thr Ala Lys Asn Thr Val Val Arg Gly Leu Glu Asn Val
             4335             4340             4345

gag gcg ctg gag ggc ggc gag gcg ctg ttc gag tgc cag ctg tcc cag    13166
Glu Ala Leu Glu Gly Gly Glu Ala Leu Phe Glu Cys Gln Leu Ser Gln
4350             4355             4360             4365

ccc gag gtg gcc gcc cac acc tgg ctg ctg gac gac gaa ccc gtg cgc    13214
Pro Glu Val Ala Ala His Thr Trp Leu Leu Asp Asp Glu Pro Val Arg
             4370             4375             4380

acc tcg gag aac gcc gag gtg gtc ttc ttc gag aac ggc ctg cgc cac    13262
Thr Ser Glu Asn Ala Glu Val Val Phe Phe Glu Asn Gly Leu Arg His
             4385             4390             4395

ctg ctg ctg ctc aaa aac ttg cgg cca caa gac agc tgc cgg gtg acc    13310
Leu Leu Leu Leu Lys Asn Leu Arg Pro Gln Asp Ser Cys Arg Val Thr
             4400             4405             4410

ttc ctg gct ggg gat atg gtg acg tcc gca ttc ctc acg gtc cga ggc    13358
Phe Leu Ala Gly Asp Met Val Thr Ser Ala Phe Leu Thr Val Arg Gly
    4415             4420             4425

tgg cgc ctg gag atc ctg gag cct ctg aaa aac gcg gcg gtc cgg gcc    13406
Trp Arg Leu Glu Ile Leu Glu Pro Leu Lys Asn Ala Ala Val Arg Ala
4430             4435             4440             4445

ggc gca cag gca cgc ttc acc tgc acg ctc agc gag gcg gtg ccc gtg    13454
Gly Ala Gln Ala Arg Phe Thr Cys Thr Leu Ser Glu Ala Val Pro Val
             4450             4455             4460

gga gag gcg tcc tgg tac atc aat ggc gcg gca gtg cag ccg gat gac    13502
Gly Glu Ala Ser Trp Tyr Ile Asn Gly Ala Ala Val Gln Pro Asp Asp
             4465             4470             4475

agc gac tgg act gtc acc gcc gac ggc agt cac caa gcc cta ctg ctg    13550
Ser Asp Trp Thr Val Thr Ala Asp Gly Ser His Gln Ala Leu Leu Leu
             4480             4485             4490

cgc agc gcc cag ccc cac cac gcc ggg gag gtc acc ttc gct tgc cgc    13598
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        Arg Ser Ala Gln Pro His His Ala Gly Glu Val Thr Phe Ala Cys Arg
           4495                4500                4505

        gac gcc gtg gcc tct gca cgg ctc acc gtg ctg ggc ctc cct gat ccc   13646
        Asp Ala Val Ala Ser Ala Arg Leu Thr Val Leu Gly Leu Pro Asp Pro
        4510                4515                4520                4525

        cca gag gat gct gag gtg gtg gct cac agc agc cac act gtg aca ctg   13694
        Pro Glu Asp Ala Glu Val Val Ala His Ser Ser His Thr Val Thr Leu
                             4530                4535                4540

        tct tgg gca gct ccc atg agt gat gga ggc ggt ggt ctc tgt ggc tac   13742
        Ser Trp Ala Ala Pro Met Ser Asp Gly Gly Gly Gly Leu Cys Gly Tyr
                        4545                4550                4555

        cgc gtg gag gtg aag gag ggg gcc aca ggc cag tgg cgg ctg tgc cac   13790
        Arg Val Glu Val Lys Glu Gly Ala Thr Gly Gln Trp Arg Leu Cys His
                   4560                4565                4570

        gag ctg gtg cct gga ccc gag tgt gtg gtg gat ggc ctg gcc ccc ggg   13838
        Glu Leu Val Pro Gly Pro Glu Cys Val Val Asp Gly Leu Ala Pro Gly
              4575                4580                4585

        gag acc tac cgc ttc cgt gtg gca gct gtg ggc cct gtg ggt gct ggg   13886
        Glu Thr Tyr Arg Phe Arg Val Ala Ala Val Gly Pro Val Gly Ala Gly
        4590                4595                4600                4605

        gaa ccg gtt cac ctg ccc cag aca gtg cgg ctt gca gag cca ccg aag   13934
        Glu Pro Val His Leu Pro Gln Thr Val Arg Leu Ala Glu Pro Pro Lys
                        4610                4615                4620

        cct gtg cct ccc cag ccc tca gcc cct gag agc cgg cag gtg gca gct   13982
        Pro Val Pro Pro Gln Pro Ser Ala Pro Glu Ser Arg Gln Val Ala Ala
                        4625                4630                4635

        ggt gaa gat gtc tct ctg gag ctt gag gtg gtg gct gag gct ggt gag   14030
        Gly Glu Asp Val Ser Leu Glu Leu Glu Val Val Ala Glu Ala Gly Glu
                   4640                4645                4650

        gtc atc tgg cac aag gga atg gag cgc atc cag ccc ggt ggg cgg ttc   14078
        Val Ile Trp His Lys Gly Met Glu Arg Ile Gln Pro Gly Gly Arg Phe
        4655                4660                4665

        gag gtg gtc tcc cag ggt cgg caa cag atg ctg gtg atc aag ggc ttc   14126
        Glu Val Val Ser Gln Gly Arg Gln Gln Met Leu Val Ile Lys Gly Phe
        4670                4675                4680                4685

        acg gca gaa gac cag ggc gag tac cac tgt ggc ctg gct cag ggc tcc   14174
        Thr Ala Glu Asp Gln Gly Glu Tyr His Cys Gly Leu Ala Gln Gly Ser
                        4690                4695                4700

        atc tgc cct gcg gct gcc acc ttc cag gtg gca ctg agc cca gcc tct   14222
        Ile Cys Pro Ala Ala Ala Thr Phe Gln Val Ala Leu Ser Pro Ala Ser
                        4705                4710                4715

        gtg gat gag gcc cct cag ccc agc ttg ccc ccc gag gca gcc cag gag   14270
        Val Asp Glu Ala Pro Gln Pro Ser Leu Pro Pro Glu Ala Ala Gln Glu
                   4720                4725                4730

        ggt gac ctg cac cta ctg tgg gag gcc ctg gct cgg aaa cgt cgc atg   14318
        Gly Asp Leu His Leu Leu Trp Glu Ala Leu Ala Arg Lys Arg Arg Met

                                      39
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agc cgt gag ccc acg ctg gac tcc att agc gag ctg cca gag gag gac    14366
Ser Arg Glu Pro Thr Leu Asp Ser Ile Ser Glu Leu Pro Glu Glu Asp
4750                4755                4760                4765

ggc cgc tcg cag cgc ctg cca cag gag gca gag gag gtg gca cct gat    14414
Gly Arg Ser Gln Arg Leu Pro Gln Glu Ala Glu Glu Val Ala Pro Asp
                    4770                4775                4780

ctc tct gaa ggc tac tcc acg gcc gat gag ctg gcc cgc act gga gat    14462
Leu Ser Glu Gly Tyr Ser Thr Ala Asp Glu Leu Ala Arg Thr Gly Asp
                4785                4790                4795

gct gac ctc tca cac acc agc tct gat gat gag tcc cgg gca ggc acc    14510
Ala Asp Leu Ser His Thr Ser Ser Asp Asp Glu Ser Arg Ala Gly Thr
            4800                4805                4810

cct tcc ctg gtc acc tac ctc aag aag gct ggg agg cca ggc acc tca    14558
Pro Ser Leu Val Thr Tyr Leu Lys Lys Ala Gly Arg Pro Gly Thr Ser
    4815                4820                4825

cca ctg gcc agc aag gtt ggg gcc cca gca gcc ccc tct gtg aag cca    14606
Pro Leu Ala Ser Lys Val Gly Ala Pro Ala Ala Pro Ser Val Lys Pro
4830                4835                4840                4845

cag cag cag cag gag cca ctg gct gct gtg cgc cca cca ctg gga gac    14654
Gln Gln Gln Gln Glu Pro Leu Ala Ala Val Arg Pro Pro Leu Gly Asp
                    4850                4855                4860

ctg agc acc aaa gac ctg ggt gat ccc tca atg gac aag gca gct gtg    14702
Leu Ser Thr Lys Asp Leu Gly Asp Pro Ser Met Asp Lys Ala Ala Val
                4865                4870                4875

aag atc cag gct gcc ttt aag ggc tac aag gtc cgg aag gag atg aag    14750
Lys Ile Gln Ala Ala Phe Lys Gly Tyr Lys Val Arg Lys Glu Met Lys
                4880                4885                4890

cag cag gaa ggg ccc atg ttc tcc cac aca ttt ggg gac acc gag gca    14798
Gln Gln Glu Gly Pro Met Phe Ser His Thr Phe Gly Asp Thr Glu Ala
    4895                4900                4905

cag gtg ggg gat gcc ctg cgg ctg gag tgt gtc gtg gcc agc aag gca    14846
Gln Val Gly Asp Ala Leu Arg Leu Glu Cys Val Val Ala Ser Lys Ala
4910                4915                4920                4925

gat gtg cga gcc cgc tgg ctg aag gat ggt gtg gag ctg acc gat ggg    14894
Asp Val Arg Ala Arg Trp Leu Lys Asp Gly Val Glu Leu Thr Asp Gly
                4930                4935                4940

cgg cac cat cac atc gac cag ctt ggg gat ggc acc tgc tct ctg ctg    14942
Arg His His His Ile Asp Gln Leu Gly Asp Gly Thr Cys Ser Leu Leu
            4945                4950                4955

atc gct ggc ctg gac cgt gct gat gct ggc tgc tac acc tgt cag gtg    14990
Ile Ala Gly Leu Asp Arg Ala Asp Ala Gly Cys Tyr Thr Cys Gln Val
            4960                4965                4970

agc aac aag ttt ggc cag gtg acc cac agt gcc tgt gtg gtg gtc agt    15038
Ser Asn Lys Phe Gly Gln Val Thr His Ser Ala Cys Val Val Val Ser
    4975                4980                4985
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ggg tca gag agt gaa gcc gag agc tcc tct ggg ggt gag ctg gac gat    15086
Gly Ser Glu Ser Glu Ala Glu Ser Ser Ser Gly Gly Glu Leu Asp Asp
4990            4995            5000            5005

gcc ttc cgc cgg gct gcc cgt cgg ctg cac cgg ctc ttc cgc acc aaa    15134
Ala Phe Arg Arg Ala Ala Arg Arg Leu His Arg Leu Phe Arg Thr Lys
            5010            5015            5020

agt ccg gct gaa gtt tca gat gag gag ctc ttc ctg agt gca gac gag    15182
Ser Pro Ala Glu Val Ser Asp Glu Glu Leu Phe Leu Ser Ala Asp Glu
            5025            5030            5035

ggc cct gca gag cca gag gag ccc gcg gac tgg cag aca tac cgc gaa    15230
Gly Pro Ala Glu Pro Glu Glu Pro Ala Asp Trp Gln Thr Tyr Arg Glu
            5040            5045            5050

gat gag cat ttc atc tgc atc cgt ttt gag gcg ctc act gag gcc cgc    15278
Asp Glu His Phe Ile Cys Ile Arg Phe Glu Ala Leu Thr Glu Ala Arg
5055            5060            5065

cag gcg gta act cgc ttc cag gag atg ttt gcc aca ctg ggc att ggg    15326
Gln Ala Val Thr Arg Phe Gln Glu Met Phe Ala Thr Leu Gly Ile Gly
5070            5075            5080            5085

gtg gag atc aag ctg gtg gaa cag ggg cct cgg agg gta gag atg tgc    15374
Val Glu Ile Lys Leu Val Glu Gln Gly Pro Arg Arg Val Glu Met Cys
            5090            5095            5100

atc agc aaa gag act cct gcc cct gtg gtg cct cca gag cca ttg ccc    15422
Ile Ser Lys Glu Thr Pro Ala Pro Val Val Pro Pro Glu Pro Leu Pro
            5105            5110            5115

agc cta ctg act tct gac gct gcc cca gtg ttc ctg act gag ttg cag    15470
Ser Leu Leu Thr Ser Asp Ala Ala Pro Val Phe Leu Thr Glu Leu Gln
            5120            5125            5130

aac caa gaa gtg cag gat ggg tat cct gtg agc ttt gac tgc gtg gtg    15518
Asn Gln Glu Val Gln Asp Gly Tyr Pro Val Ser Phe Asp Cys Val Val
5135            5140            5145

aca ggt cag ccc atg ccc agt gtg cgc tgg ttc aag gat ggg aag ttg    15566
Thr Gly Gln Pro Met Pro Ser Val Arg Trp Phe Lys Asp Gly Lys Leu
5150            5155            5160            5165

ttg gag gag gat gat cac tac atg att aat gaa gac caa cag ggt ggc    15614
Leu Glu Glu Asp Asp His Tyr Met Ile Asn Glu Asp Gln Gln Gly Gly
            5170            5175            5180

cat cag ctc atc atc aca gcc gtg gtg cca gca gac atg ggc gtc tac    15662
His Gln Leu Ile Ile Thr Ala Val Val Pro Ala Asp Met Gly Val Tyr
            5185            5190            5195

cgc tgc ctg gcc gag aac agc atg ggt gtc tcc tcc acc aag gct gag    15710
Arg Cys Leu Ala Glu Asn Ser Met Gly Val Ser Ser Thr Lys Ala Glu
            5200            5205            5210

ctc cgt gtg gac ttg aca agc aca gac tat gac act gca gca gat gcc    15758
Leu Arg Val Asp Leu Thr Ser Thr Asp Tyr Asp Thr Ala Ala Asp Ala
    5215            5220            5225
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acg gag tcc tca tcc tac ttc agt gcc caa ggc tac ctg tcc agc cgg    15806
Thr Glu Ser Ser Ser Tyr Phe Ser Ala Gln Gly Tyr Leu Ser Ser Arg
5230                5235                5240                5245

gag cag gag gga aca gag tcc acc act gat gag ggc cag ctg ccc cag    15854
Glu Gln Glu Gly Thr Glu Ser Thr Thr Asp Glu Gly Gln Leu Pro Gln
                5250                5255                5260

gtg gtg gag gag ctg aga gac ctc cag gtg gcc cct ggc aca cgc ctg    15902
Val Val Glu Glu Leu Arg Asp Leu Gln Val Ala Pro Gly Thr Arg Leu
            5265                5270                5275

gcc aag ttc cag ctc aag gtg aaa ggc tac cct gct ccc aga tta tac    15950
Ala Lys Phe Gln Leu Lys Val Lys Gly Tyr Pro Ala Pro Arg Leu Tyr
            5280                5285                5290

tgg ttc aaa gat ggc cag ccc ctg acc gca tct gcc cac atc cgc atg    15998
Trp Phe Lys Asp Gly Gln Pro Leu Thr Ala Ser Ala His Ile Arg Met
    5295                5300                5305

act ggc aag aag atc ctg cac acc ctg gag atc atc tcc gtc acc cgg    16046
Thr Gly Lys Lys Ile Leu His Thr Leu Glu Ile Ile Ser Val Thr Arg
    5310                5315                5320                5325

gag gac tct ggc cag tat gca gcc tat atc agc aat gcc atg ggt gct    16094
Glu Asp Ser Gly Gln Tyr Ala Ala Tyr Ile Ser Asn Ala Met Gly Ala
                5330                5335                5340

gcc tac tcg tct gcc cgg ctg ctg gtt cga ggc cct gat gag cca gaa    16142
Ala Tyr Ser Ser Ala Arg Leu Leu Val Arg Gly Pro Asp Glu Pro Glu
            5345                5350                5355

gag aag cct gca tca gat gtg cat gag cag ctg gtg ccg ccc cga atg    16190
Glu Lys Pro Ala Ser Asp Val His Glu Gln Leu Val Pro Pro Arg Met
            5360                5365                5370

ctg gag agg ttc acc ccc aag aaa gtg aag aaa ggc tcc agc atc acc    16238
Leu Glu Arg Phe Thr Pro Lys Lys Val Lys Lys Gly Ser Ser Ile Thr
    5375                5380                5385

ttc tct gtg aag gta gaa gga cgc ccg gtg ccc acc gtg cac tgg ctc    16286
Phe Ser Val Lys Val Glu Gly Arg Pro Val Pro Thr Val His Trp Leu
5390                5395                5400                5405

agg gag gag gct gag aga ggc gtg ctg tgg att ggc cct gac aca ccg    16334
Arg Glu Glu Ala Glu Arg Gly Val Leu Trp Ile Gly Pro Asp Thr Pro
                5410                5415                5420

ggc tac acc gtg gcc agc tct gcg cag cag cac agc ctg gtc ctg ctg    16382
Gly Tyr Thr Val Ala Ser Ser Ala Gln Gln His Ser Leu Val Leu Leu
            5425                5430                5435

gac gtg ggc cgg cag cac cag ggc acc tac aca tgc att gcc agc aac    16430
Asp Val Gly Arg Gln His Gln Gly Thr Tyr Thr Cys Ile Ala Ser Asn
            5440                5445                5450

gct gcc ggc cag gcc ctc tgc tcc gcc agc ctg cac gtc tcg ggc ctg    16478
Ala Ala Gly Gln Ala Leu Cys Ser Ala Ser Leu His Val Ser Gly Leu
    5455                5460                5465

cct aag gtg gag gag cag gag aaa gtg aag gaa gcg ctg att tcc act    16526
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          Pro Lys Val Glu Glu Gln Glu Lys Val Lys Glu Ala Leu Ile Ser Thr
          5470               5475           5480               5485

ttc ctg cag ggg acc aca caa gcc atc tca gca cag ggg ttg gaa act          16574
Phe Leu Gln Gly Thr Thr Gln Ala Ile Ser Ala Gln Gly Leu Glu Thr
                  5490               5495               5500

gcg agt ttt gct gac ctt ggt ggg cag agg aaa gaa gag cct ctg gct          16622
Ala Ser Phe Ala Asp Leu Gly Gly Gln Arg Lys Glu Glu Pro Leu Ala
                  5505               5510               5515

gcc aag gag gcc ctc ggc cac ctg tcc ctc gct gag gtg ggc aca gag          16670
Ala Lys Glu Ala Leu Gly His Leu Ser Leu Ala Glu Val Gly Thr Glu
              5520               5525               5530

gag ttc ctg cag aaa ctg acc tcc cag atc act gag atg gta tcg gcc          16718
Glu Phe Leu Gln Lys Leu Thr Ser Gln Ile Thr Glu Met Val Ser Ala
          5535               5540               5545

aag atc acg cag gcc aag ctg cag gtg ccc gga ggt gac agt gat gag          16766
Lys Ile Thr Gln Ala Lys Leu Gln Val Pro Gly Gly Asp Ser Asp Glu
5550               5555               5560               5565

gac tcc aag aca cca tct gca tcc ccc cgc cat ggc cga tca cgg cca          16814
Asp Ser Lys Thr Pro Ser Ala Ser Pro Arg His Gly Arg Ser Arg Pro
                  5570               5575               5580

tcc tcc agc atc cag gag tct tcc tca gag tca gag gac ggc gat gcc          16862
Ser Ser Ser Ile Gln Glu Ser Ser Ser Glu Ser Glu Asp Gly Asp Ala
              5585               5590               5595

cga ggc gag atc ttt gac atc tac gtg gtc acc gct gac tac ctg ccc          16910
Arg Gly Glu Ile Phe Asp Ile Tyr Val Val Thr Ala Asp Tyr Leu Pro
              5600               5605               5610

cta ggg gct gag cag gat gcc atc acg ctg cgg gaa ggc cag tat gtg          16958
Leu Gly Ala Glu Gln Asp Ala Ile Thr Leu Arg Glu Gly Gln Tyr Val
          5615               5620               5625

gag gtc ctg gat gca gcc cac cca ctg cgc tgg ctt gtc cgc acc aag          17006
Glu Val Leu Asp Ala Ala His Pro Leu Arg Trp Leu Val Arg Thr Lys
5630               5635               5640               5645

ccc acc aag tcc agc ccc tca cgg cag ggc tgg gtg tca cca gcc tac          17054
Pro Thr Lys Ser Ser Pro Ser Arg Gln Gly Trp Val Ser Pro Ala Tyr
                  5650               5655               5660

ctg gac agg agg ctc aag ctg tca cct gag tgg ggg gcc gct gag gcc          17102
Leu Asp Arg Arg Leu Lys Leu Ser Pro Glu Trp Gly Ala Ala Glu Ala
              5665               5670               5675

cct gag ttc cct ggg gag gct gtg tct gaa gac gaa tac aag gca agg          17150
Pro Glu Phe Pro Gly Glu Ala Val Ser Glu Asp Glu Tyr Lys Ala Arg
              5680               5685               5690

ctg agc tct gtg atc cag gag ctg ctg agt tct gag cag gcc ttc gtg          17198
Leu Ser Ser Val Ile Gln Glu Leu Leu Ser Ser Glu Gln Ala Phe Val
          5695               5700               5705

gag gag ctg cag ttc ctg cag agc cac cac ctg cag cac ctg gag cgc          17246
Glu Glu Leu Gln Phe Leu Gln Ser His His Leu Gln His Leu Glu Arg
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tgc ccc cac gtg ccc ata gcc gtg gcc ggc cag aag gca gtc atc ttc    17294
Cys Pro His Val Pro Ile Ala Val Ala Gly Gln Lys Ala Val Ile Phe
            5730            5735                5740

cgc aat gtg cgg gac atc ggc cgc ttc cac agc agc ttc ctg cag gag    17342
Arg Asn Val Arg Asp Ile Gly Arg Phe His Ser Ser Phe Leu Gln Glu
            5745            5750                5755

ttg cag cag tgc gac acg gac gac gac gtg gcc atg tgc ttc atc aag    17390
Leu Gln Gln Cys Asp Thr Asp Asp Asp Val Ala Met Cys Phe Ile Lys
            5760            5765                5770

aac cag gcg gcc ttt gag cag tac ctg gag ttc ctg gtg ggg cgt gtg    17438
Asn Gln Ala Ala Phe Glu Gln Tyr Leu Glu Phe Leu Val Gly Arg Val
            5775            5780                5785

cag gct gag tcg gtg gtc gtc agc acg gcc atc cag gag ttc tac aag    17486
Gln Ala Glu Ser Val Val Val Ser Thr Ala Ile Gln Glu Phe Tyr Lys
5790                5795                5800                5805

aaa tac gcg gag gag gcc ctg ttg gca ggg gac ccc tct cag ccc ccg    17534
Lys Tyr Ala Glu Glu Ala Leu Leu Ala Gly Asp Pro Ser Gln Pro Pro
                5810            5815                5820

cca cca cct ctg cag cac tac ctg gag cag cca gtg gag cgg gtg cag    17582
Pro Pro Pro Leu Gln His Tyr Leu Glu Gln Pro Val Glu Arg Val Gln
            5825            5830                5835

cgc tac cag gcc ttg ctg aag gag ttg atc cgc aac aag gcg cgg aac    17630
Arg Tyr Gln Ala Leu Leu Lys Glu Leu Ile Arg Asn Lys Ala Arg Asn
            5840            5845                5850

aga cag aac tgc gcg ctg ctg gag cag gcc tat gcc gtg gtg tct gcc    17678
Arg Gln Asn Cys Ala Leu Leu Glu Gln Ala Tyr Ala Val Val Ser Ala
        5855            5860                5865

ctg cca cag cgc gct gag aac aag ctg cac gtg tcc ctc atg gag aac    17726
Leu Pro Gln Arg Ala Glu Asn Lys Leu His Val Ser Leu Met Glu Asn
5870                5875            5880                5885

tac cca ggc acc ctg gag gcc ctg ggc gag ccc atc cgc cag ggc cac    17774
Tyr Pro Gly Thr Leu Glu Ala Leu Gly Glu Pro Ile Arg Gln Gly His
            5890            5895                5900

ttc atc gtg tgg gag ggt gca ccg ggg gcc cgc atg ccc tgg aag ggc    17822
Phe Ile Val Trp Glu Gly Ala Pro Gly Ala Arg Met Pro Trp Lys Gly
            5905            5910                5915

cac aac cgt cac gtg ttc ctc ttc cgc aac cac ctg gta atc tgc aag    17870
His Asn Arg His Val Phe Leu Phe Arg Asn His Leu Val Ile Cys Lys
            5920            5925                5930

ccc cgg cga gac tcc cgc acc gat acc gtc agc tac gtg ttc cgg aac    17918
Pro Arg Arg Asp Ser Arg Thr Asp Thr Val Ser Tyr Val Phe Arg Asn
5935                5940                5945

atg atg aag ctg agc agc atc gac ctg aac gac cag gtg gag ggg gat    17966
Met Met Lys Leu Ser Ser Ile Asp Leu Asn Asp Gln Val Glu Gly Asp
5950                5955                5960                5965
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gac cgc gcc ttc gag gtg tgg cag gag cgg gag gac tcg gtg cgc aag        18014
Asp Arg Ala Phe Glu Val Trp Gln Glu Arg Glu Asp Ser Val Arg Lys
                    5970            5975                5980

tac ctg ctg cag gca cgg aca gcc att atc aag agc tcg tgg gtg aag        18062
Tyr Leu Leu Gln Ala Arg Thr Ala Ile Ile Lys Ser Ser Trp Val Lys
                    5985            5990                5995

gag atc tgt ggc atc cag cag cgt ctg gcc ctg cct gtg tgg cgg ccc        18110
Glu Ile Cys Gly Ile Gln Gln Arg Leu Ala Leu Pro Val Trp Arg Pro
                6000            6005                6010

ccg gac ttt gaa gag gag ctg gcc gac tgc aca gcc gag ctg ggt gag        18158
Pro Asp Phe Glu Glu Glu Leu Ala Asp Cys Thr Ala Glu Leu Gly Glu
                6015            6020                6025

aca gtc aag ctg gcc tgc cgc gtg acg ggc aca ccc aag cct gtc atc        18206
Thr Val Lys Leu Ala Cys Arg Val Thr Gly Thr Pro Lys Pro Val Ile
6030                6035                6040                6045

agc tgg tac aaa gat ggg aaa gca gtg cag gtg gac ccc cac cac atc        18254
Ser Trp Tyr Lys Asp Gly Lys Ala Val Gln Val Asp Pro His His Ile
                6050            6055                6060

ctc att gaa gac cct gat ggc tcg tgt gca ctc atc ctg gac agc ctg        18302
Leu Ile Glu Asp Pro Asp Gly Ser Cys Ala Leu Ile Leu Asp Ser Leu
                6065            6070                6075

acc ggt gtg gac tct ggc cag tac atg tgc ttc gcg gcc agc gcc gct        18350
Thr Gly Val Asp Ser Gly Gln Tyr Met Cys Phe Ala Ala Ser Ala Ala
                6080            6085                6090

ggc aac tgc agt acc ctg ggc aag atc ctg gtg caa gtc cca cca cgg        18398
Gly Asn Cys Ser Thr Leu Gly Lys Ile Leu Val Gln Val Pro Pro Arg
        6095            6100            6105

ttc gtg aac aag gtc cgg gcc tca ccc ttt gtg gag gga gag gac gcc        18446
Phe Val Asn Lys Val Arg Ala Ser Pro Phe Val Glu Gly Glu Asp Ala
6110                6115                6120                6125

cag ttc acc tgc acc atc gaa ggc gcc ccg tac ccg cag atc agg tgg        18494
Gln Phe Thr Cys Thr Ile Glu Gly Ala Pro Tyr Pro Gln Ile Arg Trp
                6130            6135                6140

tac aag gac ggg gcc ctg ctg acc act ggc aac aag ttc cag aca ctg        18542
Tyr Lys Asp Gly Ala Leu Leu Thr Thr Gly Asn Lys Phe Gln Thr Leu
                6145            6150                6155

agt gag cct cgc agc ggc ctg cta gtg ctg gtg atc cgg gcg gcc agc        18590
Ser Glu Pro Arg Ser Gly Leu Leu Val Leu Val Ile Arg Ala Ala Ser
                6160            6165                6170

aag gag gac ctg ggg ctc tac gag tgt gag ctg gtg aac cgg ctg ggc        18638
Lys Glu Asp Leu Gly Leu Tyr Glu Cys Glu Leu Val Asn Arg Leu Gly
        6175            6180                6185

tcc gcg cgg gct agt gcg gag ctg cgc att cag agc ccc atg ctg cag        18686
Ser Ala Arg Ala Ser Ala Glu Leu Arg Ile Gln Ser Pro Met Leu Gln
6190                6195                6200                6205
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gcc cag gag cag tgt cac agg gag cag ctc gtg gct gca gtg gaa gac    18734
Ala Gln Glu Gln Cys His Arg Glu Gln Leu Val Ala Ala Val Glu Asp
            6210                6215                6220

acc acc ctg gag cga gcg gac cag gag gtc aca tct gtc ctg aag aga    18782
Thr Thr Leu Glu Arg Ala Asp Gln Glu Val Thr Ser Val Leu Lys Arg
            6225                6230                6235

ctg ctg ggc ccc aag gcg cca ggc ccc tcc aca ggg gac ctc act ggc    18830
Leu Leu Gly Pro Lys Ala Pro Gly Pro Ser Thr Gly Asp Leu Thr Gly
            6240                6245                6250

cct ggc ccc tgc ccc agg ggg gca ccc gca ctc cag gaa acc ggc tcc    18878
Pro Gly Pro Cys Pro Arg Gly Ala Pro Ala Leu Gln Glu Thr Gly Ser
        6255                6260                6265

cag ccc cca gtc acc gga act tcg gag gca cct gcc gtg ccc ccg agg    18926
Gln Pro Pro Val Thr Gly Thr Ser Glu Ala Pro Ala Val Pro Pro Arg
6270                6275                6280                6285

gtg cca cag ccc ctc ctc cac gaa ggc cca gag cag gag ccg gag gcc    18974
Val Pro Gln Pro Leu Leu His Glu Gly Pro Glu Gln Glu Pro Glu Ala
            6290                6295                6300

att gcc aga gcc cag gaa tgg act gtg ccc att cgg atg gag ggt gca    19022
Ile Ala Arg Ala Gln Glu Trp Thr Val Pro Ile Arg Met Glu Gly Ala
            6305                6310                6315

gcc tgg ccc ggg gca ggc aca ggg gag ctg ctc tgg gac gtc cac agc    19070
Ala Trp Pro Gly Ala Gly Thr Gly Glu Leu Leu Trp Asp Val His Ser
            6320                6325                6330

cac gtg gtc aga gag acc aca cag agg acc tac aca tac cag gcc atc    19118
His Val Val Arg Glu Thr Thr Gln Arg Thr Tyr Thr Tyr Gln Ala Ile
            6335                6340                6345

gac acg cac acc gca cgg ccc cca tcc atg cag gta acc atc gag gat    19166
Asp Thr His Thr Ala Arg Pro Pro Ser Met Gln Val Thr Ile Glu Asp
6350                6355                6360                6365

gtg cag gca cag aca ggc gga acg gcc caa ttc gag gct atc att gag    19214
Val Gln Ala Gln Thr Gly Gly Thr Ala Gln Phe Glu Ala Ile Ile Glu
            6370                6375                6380

ggc gac cca cag ccc tcg gtg acc tgg tac aag gac agc gtc cag ctg    19262
Gly Asp Pro Gln Pro Ser Val Thr Trp Tyr Lys Asp Ser Val Gln Leu
            6385                6390                6395

gtg gac agc acc cgg ctt agc cag cag caa gaa ggc acc aca tac tcc    19310
Val Asp Ser Thr Arg Leu Ser Gln Gln Gln Glu Gly Thr Thr Tyr Ser
            6400                6405                6410

ctg gtg ctg agg cat gtg gcc tcg aag gat gcc ggc gtt tac acc tgc    19358
Leu Val Leu Arg His Val Ala Ser Lys Asp Ala Gly Val Tyr Thr Cys
        6415                6420                6425

ctg gcc caa aac act ggt ggc cag gtg ctc tgc aag gca gag ctg ctg    19406
Leu Ala Gln Asn Thr Gly Gly Gln Val Leu Cys Lys Ala Glu Leu Leu
6430                6435                6440                6445

gtg ctt ggg ggg gac aat gag ccg gac tca gag aag caa agc cac cgg    19454
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        Val Leu Gly Gly Asp Asn Glu Pro Asp Ser Glu Lys Gln Ser His Arg
                    6450              6455              6460

agg aag ctg cac tcc ttc tat gag gtc aag gag gag att gga agg ggc   19502
Arg Lys Leu His Ser Phe Tyr Glu Val Lys Glu Glu Ile Gly Arg Gly
            6465              6470              6475

gtg ttt ggc ttc gta aaa aga gtg cag cac aaa gga aac aag atc ttg   19550
Val Phe Gly Phe Val Lys Arg Val Gln His Lys Gly Asn Lys Ile Leu
            6480              6485              6490

tgc gct gcc aag ttc atc ccc cta cgg agc aga act cgg gcc cag gca   19598
Cys Ala Ala Lys Phe Ile Pro Leu Arg Ser Arg Thr Arg Ala Gln Ala
            6495              6500              6505

tac agg gag cga gac atc ctg gcc gcg ctg agc cac ccg ctg gtc acg   19646
Tyr Arg Glu Arg Asp Ile Leu Ala Ala Leu Ser His Pro Leu Val Thr
6510              6515              6520              6525

ggg ctg ctg gac cag ttt gag acc cgc aag acc ctc atc ctc atc ctg   19694
Gly Leu Leu Asp Gln Phe Glu Thr Arg Lys Thr Leu Ile Leu Ile Leu
            6530              6535              6540

gag ctg tgc tca tcc gag gag ctg ctg gac cgc ctg tac agg aag ggc   19742
Glu Leu Cys Ser Ser Glu Glu Leu Leu Asp Arg Leu Tyr Arg Lys Gly
            6545              6550              6555

gtg gtg acg gag gcc gag gtc aag gtc tac atc cag cag ctg gtg gag   19790
Val Val Thr Glu Ala Glu Val Lys Val Tyr Ile Gln Gln Leu Val Glu
            6560              6565              6570

ggg ctg cac tac ctg cac agc cat ggc gtt ctc cac ctg gac ata aag   19838
Gly Leu His Tyr Leu His Ser His Gly Val Leu His Leu Asp Ile Lys
            6575              6580              6585

ccc tct aac atc ctg atg gtg cat cct gcc cgg gaa gac att aaa atc   19886
Pro Ser Asn Ile Leu Met Val His Pro Ala Arg Glu Asp Ile Lys Ile
6590              6595              6600              6605

tgc gac ttt ggc ttt gcc cag aac atc acc cca gca gag ctg cag ttc   19934
Cys Asp Phe Gly Phe Ala Gln Asn Ile Thr Pro Ala Glu Leu Gln Phe
            6610              6615              6620

agc cag tac ggc tcc cct gag ttc gtc tcc ccc gag atc atc cag cag   19982
Ser Gln Tyr Gly Ser Pro Glu Phe Val Ser Pro Glu Ile Ile Gln Gln
            6625              6630              6635

aac cct gtg agc gaa gcc tcc gac att tgg gcc atg ggt gtc atc tcc   20030
Asn Pro Val Ser Glu Ala Ser Asp Ile Trp Ala Met Gly Val Ile Ser
            6640              6645              6650

tac ctc agc ctg acc tgc tca tcc cca ttt gcc ggc gag agt gac cgt   20078
Tyr Leu Ser Leu Thr Cys Ser Ser Pro Phe Ala Gly Glu Ser Asp Arg
6655              6660              6665

gcc acc ctc ctg aac gtc ctg gag ggg cgc gtg tca tgg agc agc ccc   20126
Ala Thr Leu Leu Asn Val Leu Glu Gly Arg Val Ser Trp Ser Ser Pro
6670              6675              6680              6685

atg gct gcc cac ctc agc gaa gac gcc aaa gac ttc atc aag gct acg   20174
Met Ala Ala His Leu Ser Glu Asp Ala Lys Asp Phe Ile Lys Ala Thr
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ctg cag aga gcc cct cag gcc cgg cct agt gcg gcc cag tgc ctc tcc    20222
Leu Gln Arg Ala Pro Gln Ala Arg Pro Ser Ala Ala Gln Cys Leu Ser
            6705            6710            6715

cac ccc tgg ttc ctg aaa tcc atg cct gcg gag gag gcc cac ttc atc    20270
His Pro Trp Phe Leu Lys Ser Met Pro Ala Glu Glu Ala His Phe Ile
            6720            6725            6730

aac acc aag cag ctc aag ttc ctc ctg gcc cga agt cgc tgg cag cgt    20318
Asn Thr Lys Gln Leu Lys Phe Leu Leu Ala Arg Ser Arg Trp Gln Arg
            6735            6740            6745

tcc ctg atg agc tac aag tcc atc ctg gtg atg cgc tcc atc cct gag    20366
Ser Leu Met Ser Tyr Lys Ser Ile Leu Val Met Arg Ser Ile Pro Glu
6750            6755            6760            6765

ctg ctg cgg ggc cca ccc gac agc ccc tcc ctc ggc gta gcc cgg cac    20414
Leu Leu Arg Gly Pro Pro Asp Ser Pro Ser Leu Gly Val Ala Arg His
            6770            6775            6780

ctc tgc agg gac act ggt ggc tcc tcc agt tcc tcc tcc tcc tct gac    20462
Leu Cys Arg Asp Thr Gly Gly Ser Ser Ser Ser Ser Ser Ser Asp
            6785            6790            6795

aac gag ctc gcc cca ttt gcc cgg gct aag tca ctg cca ccc tcc ccg    20510
Asn Glu Leu Ala Pro Phe Ala Arg Ala Lys Ser Leu Pro Pro Ser Pro
            6800            6805            6810

gtg aca cac tca cca ctg ctg cac ccc cgg ggc ttc ctg cgg ccc tcg    20558
Val Thr His Ser Pro Leu Leu His Pro Arg Gly Phe Leu Arg Pro Ser
            6815            6820            6825

gcc agc ctg cct gag gaa gcc gag gcc agt gag cgc tcc acc gag gcc    20606
Ala Ser Leu Pro Glu Glu Ala Glu Ala Ser Glu Arg Ser Thr Glu Ala
6830            6835            6840            6845

cca gct ccg cct gca tct ccc gag ggt gcc ggg cca ccg gcc gcc cag    20654
Pro Ala Pro Pro Ala Ser Pro Glu Gly Ala Gly Pro Pro Ala Ala Gln
            6850            6855            6860

ggc tgc gtg ccc cgg cac agc gtc atc cgc agc ctg ttc tac cac cag    20702
Gly Cys Val Pro Arg His Ser Val Ile Arg Ser Leu Phe Tyr His Gln
            6865            6870            6875

gcg ggt gag agc cct gag cac ggg gcc ctg gcc ccg ggg agc agg cgg    20750
Ala Gly Glu Ser Pro Glu His Gly Ala Leu Ala Pro Gly Ser Arg Arg
            6880            6885            6890

cac ccg gcc cgg cgg cgg cac ctg ctg aag ggc ggg tac att gcg ggg    20798
His Pro Ala Arg Arg Arg His Leu Leu Lys Gly Gly Tyr Ile Ala Gly
            6895            6900            6905

gcg ctg cca ggc ctg cgc gag cca ctg atg gag cac cgc gtg ctg gag    20846
Ala Leu Pro Gly Leu Arg Glu Pro Leu Met Glu His Arg Val Leu Glu
6910            6915            6920            6925

gag gag gcc gcc agg gag gag cag gcc acc ctc ctg gcc aaa gcc ccc    20894
Glu Glu Ala Ala Arg Glu Glu Gln Ala Thr Leu Leu Ala Lys Ala Pro
            6930            6935            6940
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tca ttc gag act gcc ctc cgg ctg cct gcc tct ggc acc cac ttg gcc    20942
Ser Phe Glu Thr Ala Leu Arg Leu Pro Ala Ser Gly Thr His Leu Ala
        6945            6950            6955

cct ggc cac agc cac tcc ctg gaa cat gac tct ccg agc acc ccc cgc    20990
Pro Gly His Ser His Ser Leu Glu His Asp Ser Pro Ser Thr Pro Arg
        6960            6965            6970

ccc tcc tcg gag gcc tgc ggt gag gca cag cga ctg cct tca gcc ccc    21038
Pro Ser Ser Glu Ala Cys Gly Glu Ala Gln Arg Leu Pro Ser Ala Pro
        6975            6980            6985

tcc ggg ggg gcc cct atc agg gac atg ggg cac cct cag ggc tcc aag    21086
Ser Gly Gly Ala Pro Ile Arg Asp Met Gly His Pro Gln Gly Ser Lys
6990            6995            7000            7005

cag ctt cca tcc act ggt ggc cac cca ggc act gct cag cca gag agg    21134
Gln Leu Pro Ser Thr Gly Gly His Pro Gly Thr Ala Gln Pro Glu Arg
        7010            7015            7020

cca tcc ccg gac agc cct tgg ggg cag cca gcc cct ttc tgc cac ccc    21182
Pro Ser Pro Asp Ser Pro Trp Gly Gln Pro Ala Pro Phe Cys His Pro
        7025            7030            7035

aag cag ggt tct gcc ccc cag gag ggc tgc agc ccc cac cca gca gtt    21230
Lys Gln Gly Ser Ala Pro Gln Glu Gly Cys Ser Pro His Pro Ala Val
        7040            7045            7050

gcc cca tgc cct cct ggc tcc ttc cct cca gga tct tgc aaa gag gcc    21278
Ala Pro Cys Pro Pro Gly Ser Phe Pro Pro Gly Ser Cys Lys Glu Ala
        7055            7060            7065

ccc tta gta ccc tca agc ccc ttc ttg gga cag ccc cag gca ccc cct    21326
Pro Leu Val Pro Ser Ser Pro Phe Leu Gly Gln Pro Gln Ala Pro Pro
7070            7075            7080            7085

gcc cct gcc aaa gca agc ccc cca ttg gac tct aag atg ggg cct gga    21374
Ala Pro Ala Lys Ala Ser Pro Pro Leu Asp Ser Lys Met Gly Pro Gly
        7090            7095            7100

gac atc tct ctt cct ggg agg cca aaa ccc ggc ccc tgc agt tcc cca    21422
Asp Ile Ser Leu Pro Gly Arg Pro Lys Pro Gly Pro Cys Ser Ser Pro
        7105            7110            7115

ggg tca gcc tcc cag gcg agc tct tcc caa gtg agc tcc ctc agg gtg    21470
Gly Ser Ala Ser Gln Ala Ser Ser Ser Gln Val Ser Ser Leu Arg Val
        7120            7125            7130

ggc tcc tcc cag gtg ggc aca gag cct ggc ccc tcc ctg gat gcg gag    21518
Gly Ser Ser Gln Val Gly Thr Glu Pro Gly Pro Ser Leu Asp Ala Glu
7135            7140            7145

ggc tgg acc cag gag gct gag gat ctg tcc gac tcc aca ccc acc ttg    21566
Gly Trp Thr Gln Glu Ala Glu Asp Leu Ser Asp Ser Thr Pro Thr Leu
7150            7155            7160            7165

cag cgg cct cag gaa cag gcg acc atg cgc aag ttc tcc ctg ggt ggt    21614
Gln Arg Pro Gln Glu Gln Ala Thr Met Arg Lys Phe Ser Leu Gly Gly
        7170            7175            7180
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cgc ggg ggc tac gca ggc gtg gct ggc tat ggc acc ttt gcc ttt ggt    21662
Arg Gly Gly Tyr Ala Gly Val Ala Gly Tyr Gly Thr Phe Ala Phe Gly
        7185                     7190                7195

gga gat gca ggg ggc atg ctg ggg cag ggg ccc atg tgg gcc agg ata    21710
Gly Asp Ala Gly Gly Met Leu Gly Gln Gly Pro Met Trp Ala Arg Ile
        7200                     7205                7210

gcc tgg gct gtg tcc cag tcg gag gag gag gag cag gag gag gcc agg    21758
Ala Trp Ala Val Ser Gln Ser Glu Glu Glu Glu Gln Glu Glu Ala Arg
    7215                     7220                7225

gct gag tcc cag tcg gag gag cag cag gag gcc agg gct gag agc cca    21806
Ala Glu Ser Gln Ser Glu Glu Gln Gln Glu Ala Arg Ala Glu Ser Pro
7230                     7235                7240                7245

ctg ccc cag gtc agt gca agg cct gtg cct gag gtc ggc agg gct ccc    21854
Leu Pro Gln Val Ser Ala Arg Pro Val Pro Glu Val Gly Arg Ala Pro
                7250                     7255                7260

acc agg agc tct cca gag ccc acc cca tgg gag gac atc ggg cag gtc    21902
Thr Arg Ser Ser Pro Glu Pro Thr Pro Trp Glu Asp Ile Gly Gln Val
                7265                     7270                7275

tcc ctg gtg cag atc cgg gac ctg tca ggt gat gcg gag gcg gcc gac    21950
Ser Leu Val Gln Ile Arg Asp Leu Ser Gly Asp Ala Glu Ala Ala Asp
            7280                     7285                7290

aca ata tcc ctg gac att tcc gag gtg gac ccc gcc tac ctc aac ctc    21998
Thr Ile Ser Leu Asp Ile Ser Glu Val Asp Pro Ala Tyr Leu Asn Leu
    7295                     7300                7305

tca gac ctg tac gat atc aag tac ctc cca ttc gag ttt atg atc ttc    22046
Ser Asp Leu Tyr Asp Ile Lys Tyr Leu Pro Phe Glu Phe Met Ile Phe
7310                     7315                7320                7325

agg aaa gtc ccc aag tcc gct cag cca gag ccg ccc tcc ccc atg gct    22094
Arg Lys Val Pro Lys Ser Ala Gln Pro Glu Pro Pro Ser Pro Met Ala
                7330                     7335                7340

gag gag gag ctg gcc gag ttc ccg gag ccc acg tgg ccc tgg cca ggt    22142
Glu Glu Glu Leu Ala Glu Phe Pro Glu Pro Thr Trp Pro Trp Pro Gly
                7345                     7350                7355

gaa ctg ggc ccc cac gca ggc ctg gag atc aca gag gag tca gag gat    22190
Glu Leu Gly Pro His Ala Gly Leu Glu Ile Thr Glu Glu Ser Glu Asp
        7360                     7365                7370

gtg gac gcg ctg ctg gca gag gct gcc gtg ggc agg aag cgc aag tgg    22238
Val Asp Ala Leu Leu Ala Glu Ala Ala Val Gly Arg Lys Arg Lys Trp
    7375                     7380                7385

tcc tcg ccg tca cgc agc ctc ttc cac ttc cct ggg agg cac ctg ccg    22286
Ser Ser Pro Ser Arg Ser Leu Phe His Phe Pro Gly Arg His Leu Pro
7390                     7395                7400                7405

ctg gat gag cct gca gag ctg ggg ctg cgt gag aga gtg aag gcc tcc    22334
Leu Asp Glu Pro Ala Glu Leu Gly Leu Arg Glu Arg Val Lys Ala Ser
            7410                     7415                7420

gtg gag cac atc tcc cgg atc ctg aag ggc agg ccg gaa ggt ctg gag    22382
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Val Glu His Ile Ser Arg Ile Leu Lys Gly Arg Pro Glu Gly Leu Glu
        7425                7430                7435

aag gag ggg ccc ccc agg aag aag cca ggc ctt gct tcc ttc cgg ctc    22430
Lys Glu Gly Pro Pro Arg Lys Lys Pro Gly Leu Ala Ser Phe Arg Leu
        7440                7445                7450

tca ggt ctg aag agc tgg gac cga gcg ccg aca ttc cta agg gag ctc    22478
Ser Gly Leu Lys Ser Trp Asp Arg Ala Pro Thr Phe Leu Arg Glu Leu
        7455                7460                7465

tca gat gag act gtg gtc ctg ggc cag tca gtg aca ctg gcc tgc cag    22526
Ser Asp Glu Thr Val Val Leu Gly Gln Ser Val Thr Leu Ala Cys Gln
7470                7475                7480                7485

gtg tca gcc cag cca gct gcc cag gcc acc tgg agc aaa gac gga gcc    22574
Val Ser Ala Gln Pro Ala Ala Gln Ala Thr Trp Ser Lys Asp Gly Ala
                7490                7495                7500

ccc ctg gag agc agc agc cgt gtc ctc atc tct gcc acc ctc aag aac    22622
Pro Leu Glu Ser Ser Ser Arg Val Leu Ile Ser Ala Thr Leu Lys Asn
        7505                7510                7515

ttc cag ctt ctg acc atc ctg gtg gtg gtg gct gag gac ctg ggt gtg    22670
Phe Gln Leu Leu Thr Ile Leu Val Val Val Ala Glu Asp Leu Gly Val
        7520                7525                7530

tac acc tgc agc gtg agc aat gcg ctg ggg aca gtg acc acc acg ggc    22718
Tyr Thr Cys Ser Val Ser Asn Ala Leu Gly Thr Val Thr Thr Thr Gly
        7535                7540                7545

gtc ctc cgg aag gca gag cgc ccc tca tct tcg cca tgc ccg gat atc    22766
Val Leu Arg Lys Ala Glu Arg Pro Ser Ser Pro Cys Pro Asp Ile
7550                7555                7560                7565

ggg gag gtg tac gcg gat ggg gtg ctg ctg gtc tgg aag ccc gtg gaa    22814
Gly Glu Val Tyr Ala Asp Gly Val Leu Leu Val Trp Lys Pro Val Glu
                7570                7575                7580

tcc tac ggc cct gtg acc tac att gtg cag tgc agc cta gaa ggc ggc    22862
Ser Tyr Gly Pro Val Thr Tyr Ile Val Gln Cys Ser Leu Glu Gly Gly
                7585                7590                7595

agc tgg acc aca ctg gcc tcc gac atc ttt gac tgc tgc tac ctg acc    22910
Ser Trp Thr Thr Leu Ala Ser Asp Ile Phe Asp Cys Cys Tyr Leu Thr
                7600                7605                7610

agc aag ctc tcc cgg ggt ggc acc tac acc ttc cgc acg gca tgt gtc    22958
Ser Lys Leu Ser Arg Gly Gly Thr Tyr Thr Phe Arg Thr Ala Cys Val
        7615                7620                7625

agc aag gca gga atg ggt ccc tac agc agc ccc tcg gag caa gtc ctc    23006
Ser Lys Ala Gly Met Gly Pro Tyr Ser Ser Pro Ser Glu Gln Val Leu
7630                7635                7640                7645

ctg gga ggg ccc agc cac ctg gcc tct gag gag gag agc cag ggg cgg    23054
Leu Gly Gly Pro Ser His Leu Ala Ser Glu Glu Glu Ser Gln Gly Arg
                7650                7655                7660

tca gcc caa ccc ctg ccc agc aca aag acc ttc gca ttc cag aca cag    23102
Ser Ala Gln Pro Leu Pro Ser Thr Lys Thr Phe Ala Phe Gln Thr Gln
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atc cag agg ggc cgc ttc agc gtg gtg cgg caa tgc tgg gag aag gcc      23150
Ile Gln Arg Gly Arg Phe Ser Val Val Arg Gln Cys Trp Glu Lys Ala
        7680                 7685                 7690

agc ggg cgg gcg ctg gcc gcc aag atc atc ccc tac cac ccc aag gac      23198
Ser Gly Arg Ala Leu Ala Ala Lys Ile Ile Pro Tyr His Pro Lys Asp
        7695                 7700                 7705

aag aca gca gtg ctg cgc gaa tac gag gcc ctc aag ggc ctg cgc cac      23246
Lys Thr Ala Val Leu Arg Glu Tyr Glu Ala Leu Lys Gly Leu Arg His
7710                 7715                 7720                 7725

ccg cac ctg gcc cag ctg cac gca gcc tac ctc agc ccc cgg cac ctg      23294
Pro His Leu Ala Gln Leu His Ala Ala Tyr Leu Ser Pro Arg His Leu
                7730                 7735                 7740

gtg ctc atc ttg gag ctg tgc tct ggg ccc gag ctg ctc ccc tgc ctg      23342
Val Leu Ile Leu Glu Leu Cys Ser Gly Pro Glu Leu Leu Pro Cys Leu
            7745                 7750                 7755

gcc gag agg gcc tcc tac tca gaa tcc gag gtg aag gac tac ctg tgg      23390
Ala Glu Arg Ala Ser Tyr Ser Glu Ser Glu Val Lys Asp Tyr Leu Trp
            7760                 7765                 7770

cag atg ttg agt gcc acc cag tac ctg cac aac cag cac atc ctg cac      23438
Gln Met Leu Ser Ala Thr Gln Tyr Leu His Asn Gln His Ile Leu His
        7775                 7780                 7785

ctg gac ctg agg tcc gag aac atg atc atc acc gaa tac aac ctg ctc      23486
Leu Asp Leu Arg Ser Glu Asn Met Ile Ile Thr Glu Tyr Asn Leu Leu
7790                 7795                 7800                 7805

aag gtc gtg gac ctg ggc aat gca cag agc ctc agc cag gag aag gtg      23534
Lys Val Val Asp Leu Gly Asn Ala Gln Ser Leu Ser Gln Glu Lys Val
                7810                 7815                 7820

ctg ccc tca gac aag ttc aag gac tac cta gag acc atg gct cca gag      23582
Leu Pro Ser Asp Lys Phe Lys Asp Tyr Leu Glu Thr Met Ala Pro Glu
                7825                 7830                 7835

ctc ctg gag ggc cag ggg gct gtt cca cag aca gac atc tgg gcc atc      23630
Leu Leu Glu Gly Gln Gly Ala Val Pro Gln Thr Asp Ile Trp Ala Ile
        7840                 7845                 7850

ggt gtg aca gcc ttc atc atg ctg agc gcc gag tac ccg gtg agc agc      23678
Gly Val Thr Ala Phe Ile Met Leu Ser Ala Glu Tyr Pro Val Ser Ser
        7855                 7860                 7865

gag ggt gca cgc gac ctg cag aga gga ctg cgc aag ggg ctg gtc cgg      23726
Glu Gly Ala Arg Asp Leu Gln Arg Gly Leu Arg Lys Gly Leu Val Arg
7870                 7875                 7880                 7885

ctg agc cgc tgc tac gcg ggg ctg tcc ggg ggc gcc gtg gcc ttc ctg      23774
Leu Ser Arg Cys Tyr Ala Gly Leu Ser Gly Gly Ala Val Ala Phe Leu
                7890                 7895                 7900

cgc agc act ctg tgc gcc cag ccc tgg ggc cgg ccc tgc gcg tcc agc      23822
Arg Ser Thr Leu Cys Ala Gln Pro Trp Gly Arg Pro Cys Ala Ser Ser
                7905                 7910                 7915
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tgc ctg cag tgc ccg tgg cta aca gag gag ggc ccg gcc tgt tcg cgg      23870
Cys Leu Gln Cys Pro Trp Leu Thr Glu Glu Gly Pro Ala Cys Ser Arg
        7920              7925              7930

ccc gcg ccc gtg acc ttc cct acc gcg cgg ctg cgc gtc ttc gtg cgc      23918
Pro Ala Pro Val Thr Phe Pro Thr Ala Arg Leu Arg Val Phe Val Arg
        7935              7940              7945

aat cgc gag aag aga cgc gcg ctg ctg tac aag agg cac aac ctg gcc      23966
Asn Arg Glu Lys Arg Arg Ala Leu Leu Tyr Lys Arg His Asn Leu Ala
7950              7955              7960              7965

cag gtg cgc tga gggtcgcccc ggccacaccc ttggtctccc cgctgggggt          24018
Gln Val Arg  *


cgctgcagac gcgccaataa aaacgcccag ccgggcgaga aaaaaaaaaa aaaaaaaaaa 24078
aaaaaaaaaa aaaaaaaaag gcggccgcta aaaagtcta ga                     24120

<210> 5
<211> 7968
<212> PRT
<213> Homo sapiens

<400> 5
Met Asp Gln Pro Gln Phe Ser Gly Ala Pro Arg Phe Leu Thr Arg Pro
1               5                   10                  15
Lys Ala Phe Val Val Ser Val Gly Lys Asp Ala Thr Leu Ser Cys Gln
            20                  25                  30
Ile Val Gly Asn Pro Thr Pro Gln Val Ser Trp Glu Lys Asp Gln Gln
        35                  40                  45
Pro Val Thr Ala Gly Ala Arg Phe Arg Leu Ala Gln Asp Gly Asp Leu
    50                  55                  60
Tyr Arg Leu Thr Ile Leu Asp Leu Ala Leu Gly Asp Ser Gly Gln Tyr
65                  70                  75                  80
Val Cys Arg Ala Arg Asn Ala Ile Gly Glu Ala Phe Ala Ala Val Gly
                85                  90                  95
Leu Gln Val Asp Ala Glu Ala Ala Cys Ala Glu Gln Ala Pro His Phe
                100                 105                 110
Leu Leu Arg Pro Thr Ser Ile Arg Val Arg Glu Gly Ser Glu Ala Thr
        115                 120                 125
Phe Arg Cys Arg Val Gly Gly Ser Pro Arg Pro Ala Val Ser Trp Ser
    130                 135                 140
Lys Asp Gly Arg Arg Leu Gly Glu Pro Asp Gly Pro Arg Val Arg Val
145                 150                 155                 160
Glu Glu Leu Gly Glu Ala Ser Ala Leu Arg Ile Arg Ala Ala Arg Pro
                165                 170                 175
Arg Asp Gly Gly Thr Tyr Glu Val Arg Ala Glu Asn Pro Leu Gly Ala
                180                 185                 190
Ala Ser Ala Ala Ala Ala Leu Val Val Asp Ser Asp Ala Ala Asp Thr
        195                 200                 205
Ala Ser Arg Pro Gly Thr Ser Thr Ala Ala Leu Leu Ala His Leu Gln
    210                 215                 220
Arg Arg Arg Glu Ala Met Arg Ala Glu Gly Ala Pro Ala Ser Pro Pro
225                 230                 235                 240
Ser Thr Gly Thr Arg Thr Cys Thr Val Thr Glu Gly Lys His Ala Arg
                245                 250                 255
Leu Ser Cys Tyr Val Thr Gly Glu Pro Lys Pro Glu Thr Val Trp Lys
                260                 265                 270
Lys Asp Gly Gln Leu Val Thr Glu Gly Arg Arg His Val Val Tyr Glu
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                275                    280                    285
Asp Ala Gln Glu Asn Phe Val Leu Lys Ile Leu Phe Cys Lys Gln Ser
    290             295             300
Asp Arg Gly Leu Tyr Thr Cys Thr Ala Ser Asn Leu Val Gly Gln Thr
305             310             315                         320
Tyr Ser Ser Val Leu Val Val Val Arg Glu Pro Ala Val Pro Phe Lys
                325             330                         335
Lys Arg Leu Gln Asp Leu Glu Val Arg Glu Lys Glu Ser Ala Thr Phe
            340             345             350
Leu Cys Glu Val Pro Gln Pro Ser Thr Glu Ala Ala Trp Phe Lys Glu
        355             360             365
Glu Thr Arg Leu Trp Ala Ser Ala Lys Tyr Gly Ile Glu Glu Glu Gly
    370             375             380
Thr Glu Arg Arg Leu Thr Val Arg Asn Val Ser Ala Asp Asp Asp Ala
385             390             395                         400
Val Tyr Ile Cys Glu Thr Pro Glu Gly Ser Arg Thr Val Ala Glu Leu
                405             410                         415
Ala Val Gln Gly Asn Leu Leu Arg Lys Leu Pro Arg Lys Thr Ala Val
            420             425             430
Arg Val Gly Asp Thr Ala Met Phe Cys Val Glu Leu Ala Val Pro Val
        435             440             445
Gly Pro Val His Trp Leu Arg Asn Gln Glu Glu Val Val Ala Gly Gly
    450             455             460
Arg Val Ala Ile Ser Ala Glu Gly Thr Arg His Thr Leu Thr Ile Ser
465             470             475                         480
Gln Cys Cys Leu Glu Asp Val Gly Gln Val Ala Phe Met Ala Gly Asp
                485             490                         495
Cys Gln Thr Ser Thr Arg Phe Cys Val Ser Ala Pro Arg Lys Pro Pro
            500             505             510
Leu Gln Pro Pro Val Asp Pro Val Val Lys Ala Arg Met Glu Ser Ser
        515             520             525
Val Ile Leu Ser Trp Ser Pro Pro His Gly Glu Arg Pro Val Thr
    530             535             540
Ile Asp Gly Tyr Leu Val Glu Lys Lys Lys Leu Gly Thr Tyr Thr Trp
545             550             555                         560
Ile Arg Cys His Glu Ala Glu Trp Val Ala Thr Pro Glu Leu Thr Val
                565             570                         575
Ala Asp Val Ala Glu Glu Gly Asn Phe Gln Phe Arg Val Ser Ala Leu
            580             585             590
Asn Ser Phe Gly Gln Ser Pro Tyr Leu Glu Phe Pro Gly Thr Val His
        595             600             605
Leu Ala Pro Lys Leu Ala Val Arg Thr Pro Leu Lys Ala Val Gln Ala
    610             615             620
Val Glu Gly Gly Glu Val Thr Phe Ser Val Asp Leu Thr Val Ala Ser
625             630             635                         640
Ala Gly Glu Trp Phe Leu Asp Gly Gln Ala Leu Lys Ala Ser Ser Val
                645             650             655
Tyr Glu Ile His Cys Asp Arg Thr Arg His Thr Leu Thr Ile Arg Glu
                660             665             670
Val Pro Ala Ser Leu His Gly Ala Gln Leu Lys Phe Val Ala Asn Gly
        675             680             685
Ile Glu Ser Ser Ile Arg Met Glu Val Arg Ala Ala Pro Gly Leu Thr
    690             695             700
Ala Asn Lys Pro Pro Ala Ala Ala Ala Arg Glu Val Leu Ala Arg Leu
705             710             715                         720
His Glu Glu Ala Gln Leu Leu Ala Glu Leu Ser Asp Gln Ala Ala Ala
                725             730                         735
Val Thr Trp Leu Lys Asp Gly Arg Thr Leu Ser Pro Gly Pro Lys Tyr
                740             745             750
Glu Val Gln Ala Ser Ala Gly Arg Arg Val Leu Leu Val Arg Asp Val
    755             760             765
                              54
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Ala Arg Asp Asp Ala Gly Leu Tyr Glu Cys Val Ser Arg Gly Gly Arg
    770             775                 780
Ile Ala Tyr Gln Leu Ser Val Gln Gly Leu Ala Arg Phe Leu His Lys
785             790                 795                 800
Asp Met Ala Gly Ser Cys Val Asp Ala Val Ala Gly Gly Pro Ala Gln
            805                 810                 815
Phe Glu Cys Glu Thr Ser Glu Ala His Val His Val His Trp Tyr Lys
        820                 825                 830
Asp Gly Met Glu Leu Gly His Ser Gly Glu Arg Phe Leu Gln Glu Asp
        835                 840                 845
Val Gly Thr Arg His Arg Leu Val Ala Ala Thr Val Thr Arg Gln Asp
    850                 855                 860
Glu Gly Thr Tyr Ser Cys Arg Val Gly Glu Asp Ser Val Asp Phe Arg
865                 870                 875                 880
Leu Arg Val Ser Glu Pro Lys Val Val Phe Ala Lys Glu Gln Leu Ala
            885                 890                 895
Arg Arg Lys Leu Gln Ala Glu Ala Gly Ala Ser Ala Thr Leu Ser Cys
        900                 905                 910
Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys
    915                 920                 925
Lys Leu Ser Ser Ser Ser Lys Val Cys Met Glu Ala Thr Gly Cys Thr
    930                 935                 940
Arg Arg Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala Gly Glu Tyr
945                 950                 955                 960
Ser Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe His Leu Asp Val Lys
            965                 970                 975
Glu Pro Lys Val Val Phe Ala Lys Asp Gln Val Ala His Ser Glu Val
            980                 985                 990
Gln Ala Glu Ala Gly Ala Asn Ala Thr Leu Ser Cys Glu Val Ala Gln
        995                 1000                1005
Ala Gln Ala Glu Val Met Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser
    1010                1015                1020
Ser Leu Lys Val His Val Glu Ala Lys Gly Cys Arg Arg Arg Leu Val
1025                1030                1035                1040
Val Gln Gln Ala Gly Lys Thr Asp Ala Gly Asp Tyr Ser Cys Glu Ala
            1045                1050                1055
Arg Gly Gln Arg Val Ser Phe Arg Leu His Ile Thr Glu Pro Lys Met
            1060                1065                1070
Met Phe Ala Lys Glu Gln Ser Val His Asn Glu Val Gln Ala Glu Ala
        1075                1080                1085
Gly Ala Ser Ala Met Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu
    1090                1095                1100
Val Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser Ser Lys Val
1105                1110                1115                1120
Gly Met Glu Val Lys Gly Cys Thr Arg Arg Leu Val Leu Pro Gln Ala
            1125                1130                1135
Gly Lys Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly Gly Gln Arg
        1140                1145                1150
Val Ser Phe His Leu His Ile Thr Glu Pro Lys Gly Val Phe Ala Lys
    1155                1160                1165
Glu Gln Ser Val His Asn Glu Val Gln Ala Glu Ala Gly Thr Thr Ala
    1170                1175                1180
Met Leu Ser Cys Glu Val Ala Gln Pro Gln Thr Glu Val Thr Trp Tyr
1185                1190                1195                1200
Lys Asp Gly Lys Lys Leu Ser Ser Ser Ser Lys Val Arg Met Glu Val
            1205                1210                1215
Lys Gly Cys Thr Arg Arg Leu Val Val Gln Gln Val Gly Lys Ala Asp
        1220                1225                1230
Ala Gly Glu Tyr Ser Cys Glu Ala Gly Gly Gln Arg Val Ser Phe Gln
    1235                1240                1245
Leu His Ile Thr Glu Pro Lys Ala Val Phe Ala Lys Glu Gln Leu Val
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        1250                1255                    1260
His Asn Glu Val Arg Thr Glu Ala Gly Ala Ser Ala Thr Leu Ser Cys
1265                1270                1275                    1280
Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys
             1285                1290                1295
Lys Leu Ser Ser Ser Ser Lys Val Arg Ile Glu Ala Ala Gly Cys Met
         1300                1305                1310
Arg Gln Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala Gly Glu Tyr
         1315                1320                1325
Thr Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe His Leu Asp Val Ser
     1330                1335                1340
Glu Pro Lys Ala Val Phe Ala Lys Glu Gln Leu Ala His Arg Lys Val
1345                1350                1355                    1360
Gln Ala Glu Ala Gly Ala Ile Ala Thr Leu Ser Cys Glu Val Ala Gln
             1365                1370                1375
Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser
             1380                1385                1390
Ser Ser Lys Val Arg Met Glu Ala Val Gly Cys Thr Arg Arg Leu Val
         1395                1400                1405
Val Gln Gln Ala Cys Gln Ala Asp Thr Gly Glu Tyr Ser Cys Glu Ala
     1410                1415                1420
Gly Gly Gln Arg Leu Ser Phe Ser Leu Asp Val Ala Glu Pro Lys Val
     1425                1430                1435                1440
Val Phe Ala Lys Glu Gln Pro Val His Arg Glu Val Gln Ala Gln Ala
             1445                1450                1455
Gly Ala Ser Thr Thr Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu
         1460                1465                1470
Val Met Trp Tyr Lys Asp Gly Lys Lys Leu Ser Phe Ser Ser Lys Val
     1475                1480                1485
Arg Met Glu Ala Val Gly Cys Thr Arg Arg Leu Val Val Gln Gln Ala
     1490                1495                1500
Gly Gln Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly Ser Gln Arg
 1505                1510                1515                    1520
Leu Ser Phe His Leu His Val Ala Glu Pro Lys Ala Val Phe Ala Lys
             1525                1530                1535
Glu Gln Pro Ala Ser Arg Glu Val Gln Ala Glu Ala Gly Thr Ser Ala
             1540                1545                1550
Thr Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr
         1555                1560                1565
Lys Asp Gly Lys Lys Leu Ser Ser Ser Ser Lys Val Arg Met Glu Ala
     1570                1575                1580
Val Gly Cys Thr Arg Arg Leu Val Val Gln Glu Ala Gly Gln Ala Asp
1585                1590                1595                    1600
Ala Gly Glu Tyr Ser Cys Lys Ala Gly Asp Gln Arg Leu Ser Phe His
         1605                1610                1615
Leu His Val Ala Glu Pro Lys Val Val Phe Ala Lys Glu Gln Pro Ala
         1620                1625                1630
His Arg Glu Val Gln Ala Glu Ala Gly Ala Ser Ala Thr Leu Ser Cys
         1635                1640                1645
Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys
     1650                1655                1660
Lys Leu Ser Ser Ser Ser Lys Val Arg Val Glu Ala Val Gly Cys Thr
1665                1670                1675                    1680
Arg Arg Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala Gly Glu Tyr
             1685                1690                1695
Ser Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe Arg Leu His Val Ala
         1700                1705                1710
Glu Leu Glu Pro Gln Ile Ser Glu Arg Pro Cys Arg Arg Glu Pro Leu
     1715                1720                1725
Val Val Lys Glu His Glu Asp Ile Ile Leu Thr Ala Thr Leu Ala Thr
     1730                1735                1740
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Pro Ser Ala Ala Thr Val Thr Trp Leu Lys Asp Gly Val Glu Ile Arg
1745   1750   1755   1760
Arg Ser Lys Arg His Glu Thr Ala Ser Gln Gly Asp Thr His Thr Leu
              1765   1770   1775
Thr Val His Gly Ala Gln Val Leu Asp Ser Ala Ile Tyr Ser Cys Arg
         1780   1785   1790
Val Gly Ala Glu Gly Gln Asp Phe Pro Val Gln Val Glu Glu Val Ala
         1795   1800   1805
Ala Lys Phe Cys Arg Leu Leu Glu Pro Val Cys Gly Glu Leu Gly Gly
    1810   1815   1820
Thr Val Thr Leu Ala Cys Glu Leu Ser Pro Ala Cys Ala Glu Val Val
1825   1830   1835   1840
Trp Arg Cys Gly Asn Thr Gln Pro Arg Val Gly Lys Arg Phe Gln Met
              1845   1850   1855
Val Ala Glu Gly Pro Val Arg Ser Leu Thr Val Leu Gly Leu Arg Ala
         1860   1865   1870
Glu Asp Ala Gly Glu Tyr Val Cys Glu Ser Arg Asp Asp His Thr Ser
    1875   1880   1885
Ala Gln Leu Thr Val Ser Val Pro Arg Val Val Lys Phe Met Ser Gly
    1890   1895   1900
Leu Ser Thr Val Val Ala Glu Glu Gly Gly Glu Ala Thr Phe Gln Cys
1905   1910   1915   1920
Val Val Ser Pro Ser Asp Val Ala Val Val Trp Phe Arg Asp Gly Ala
              1925   1930   1935
Leu Leu Gln Pro Ser Glu Lys Phe Ala Ile Ser Gln Ser Gly Ala Ser
         1940   1945   1950
His Ser Leu Thr Ile Ser Asp Leu Val Leu Glu Asp Ala Gly Gln Ile
         1955   1960   1965
Thr Val Glu Ala Glu Gly Ala Ser Ser Ser Ala Ala Leu Arg Val Arg
    1970   1975   1980
Glu Ala Pro Val Leu Phe Lys Lys Lys Leu Glu Pro Gln Thr Val Glu
1985   1990   1995   2000
Glu Arg Ser Ser Val Thr Leu Glu Val Glu Leu Thr Arg Pro Trp Pro
         2005   2010   2015
Glu Leu Arg Trp Thr Arg Asn Ala Thr Ala Leu Ala Pro Gly Lys Asn
         2020   2025   2030
Val Glu Ile His Ala Glu Gly Ala Arg His Arg Leu Val Leu His Asn
         2035   2040   2045
Val Gly Phe Ala Asp Arg Gly Phe Phe Gly Cys Glu Thr Pro Asp Asp
    2050   2055   2060
Lys Thr Gln Ala Lys Leu Thr Val Glu Met Arg Gln Val Arg Leu Val
2065   2070   2075   2080
Arg Gly Leu Gln Ala Val Glu Ala Arg Glu Gln Gly Thr Ala Thr Met
              2085   2090   2095
Glu Val Gln Leu Ser His Ala Asp Val Asp Gly Ser Trp Thr Arg Asp
         2100   2105   2110
Gly Leu Arg Phe Gln Gln Gly Pro Thr Cys His Leu Ala Val Arg Gly
         2115   2120   2125
Pro Met His Thr Leu Thr Leu Ser Gly Leu Arg Pro Glu Asp Ser Gly
         2130   2135   2140
Leu Met Val Phe Lys Ala Glu Gly Val His Thr Ser Ala Arg Leu Val
2145   2150   2155   2160
Val Thr Glu Leu Pro Val Ser Phe Ser Arg Pro Leu Gln Asp Val Val
              2165   2170   2175
Thr Thr Glu Lys Glu Lys Val Thr Leu Glu Cys Glu Leu Ser Arg Pro
         2180   2185   2190
Asn Val Asp Val Arg Trp Leu Lys Asp Gly Val Glu Leu Arg Ala Gly
         2195   2200   2205
Lys Thr Met Ala Ile Ala Ala Gln Gly Ala Cys Arg Ser Leu Thr Ile
    2210   2215   2220
Tyr Arg Cys Glu Phe Ala Asp Gln Gly Val Tyr Val Cys Asp Ala His

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2225                    2230                      2235                        2240
Asp Ala Gln Ser Ser Ala Ser Val Lys Val Gln Gly Arg Thr Tyr Thr
            2245                      2250                       2255
Leu Ile Tyr Arg Arg Val Leu Ala Glu Asp Ala Gly Glu Ile Gln Phe
        2260                      2265                      2270
Val Ala Glu Asn Ala Glu Ser Arg Ala Gln Leu Arg Val Lys Glu Leu
    2275                      2280                      2285
Pro Val Thr Leu Val Arg Pro Leu Arg Asp Lys Ile Ala Met Glu Lys
    2290                      2295                      2300
His Arg Gly Val Leu Glu Cys Gln Val Ser Arg Ala Ser Ala Gln Val
2305                      2310                      2315                      2320
Arg Trp Phe Lys Gly Ser Gln Glu Leu Gln Pro Gly Pro Lys Tyr Glu
            2325                      2330                      2335
Leu Val Ser Asp Gly Leu Tyr Arg Lys Leu Ile Ile Ser Asp Val His
        2340                      2345                      2350
Ala Glu Asp Glu Asp Thr Tyr Thr Cys Asp Ala Gly Asp Val Lys Thr
        2355                      2360                      2365
Ser Ala Gln Phe Phe Val Glu Glu Gln Ser Ile Thr Ile Val Arg Gly
    2370                      2375                      2380
Leu Gln Asp Val Thr Val Met Glu Pro Ala Pro Ala Trp Phe Glu Cys
2385                      2390                      2395                      2400
Glu Thr Ser Ile Pro Ser Val Arg Pro Pro Lys Trp Leu Leu Gly Lys
                2405                      2410                      2415
Thr Val Leu Gln Ala Gly Gly Asn Val Gly Leu Glu Gln Glu Gly Thr
            2420                      2425                      2430
Val His Arg Leu Met Leu Arg Arg Thr Cys Ser Thr Met Thr Gly Pro
        2435                      2440                      2445
Val His Phe Thr Val Gly Lys Ser Arg Ser Ser Ala Arg Leu Val Val
    2450                      2455                      2460
Ser Asp Ile Pro Val Val Leu Thr Arg Pro Leu Glu Pro Lys Thr Gly
2465                      2470                      2475                      2480
Arg Glu Leu Gln Ser Val Val Leu Ser Cys Asp Phe Arg Pro Ala Pro
            2485                      2490                      2495
Lys Ala Val Gln Trp Tyr Lys Asp Asp Thr Pro Leu Ser Pro Ser Glu
            2500                      2505                      2510
Lys Phe Lys Met Ser Leu Glu Gly Gln Met Ala Glu Leu Arg Ile Leu
            2515                      2520                      2525
Arg Leu Met Pro Ala Asp Ala Gly Val Tyr Arg Cys Gln Ala Gly Ser
        2530                      2535                      2540
Ala His Ser Ser Thr Glu Val Thr Val Glu Ala Arg Glu Val Thr Val
2545                      2550                      2555                      2560
Thr Gly Pro Leu Gln Asp Ala Glu Ala Thr Glu Glu Gly Trp Ala Ser
            2565                      2570                      2575
Phe Ser Cys Glu Leu Ser His Glu Asp Glu Glu Val Glu Trp Ser Leu
            2580                      2585                      2590
Asn Gly Met Pro Leu Tyr Asn Asp Ser Phe His Glu Ile Ser His Lys
        2595                      2600                      2605
Gly Arg Arg His Thr Leu Val Leu Lys Ser Ile Gln Arg Ala Asp Ala
    2610                      2615                      2620
Gly Ile Val Arg Ala Ser Ser Leu Lys Val Ser Thr Ser Ala Arg Leu
2625                      2630                      2635                      2640
Glu Val Arg Val Lys Pro Val Val Phe Leu Lys Ala Leu Asp Asp Leu
            2645                      2650                      2655
Ser Ala Glu Glu Arg Gly Thr Leu Ala Leu Gln Cys Glu Val Ser Asp
        2660                      2665                      2670
Pro Glu Ala His Val Val Trp Arg Lys Asp Gly Val Gln Leu Gly Pro
    2675                      2680                      2685
Ser Asp Lys Tyr Asp Phe Leu His Thr Ala Gly Thr Arg Gly Leu Val
        2690                      2695                      2700
Val His Asp Val Ser Pro Glu Asp Ala Gly Leu Tyr Thr Cys His Val
2705                      2710                      2715                      2720
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Gly Ser Glu Glu Thr Arg Ala Arg Val Arg Val His Asp Leu His Val
          2725                2730                2735
Gly Ile Thr Lys Arg Leu Lys Thr Met Glu Val Leu Glu Gly Glu Ser
          2740                2745                2750
Cys Ser Phe Glu Cys Val Leu Ser His Glu Ser Ala Ser Asp Pro Ala
          2755                2760                2765
Met Trp Thr Val Gly Gly Lys Thr Val Gly Ser Ser Ser Arg Phe Gln
     2770                2775                2780
Ala Thr Arg Gln Gly Arg Lys Tyr Ile Leu Val Val Arg Glu Ala Ala
2785                2790                2795                2800
Pro Ser Asp Ala Gly Glu Val Val Phe Ser Val Arg Gly Leu Thr Ser
          2805                2810                2815
Lys Ala Ser Leu Ile Val Arg Glu Arg Pro Ala Ala Ile Ile Lys Pro
          2820                2825                2830
Leu Glu Asp Gln Trp Val Ala Pro Gly Glu Asp Val Glu Leu Arg Cys
     2835                2840                2845
Glu Leu Ser Arg Ala Gly Thr Pro Val His Trp Leu Lys Asp Arg Lys
     2850                2855                2860
Ala Ile Arg Lys Ser Gln Lys Tyr Asp Val Val Cys Glu Gly Thr Met
2865                2870                2875                2880
Ala Met Leu Val Ile Arg Gly Ala Ser Leu Lys Asp Ala Gly Glu Tyr
          2885                2890                2895
Thr Cys Glu Val Glu Ala Ser Lys Ser Thr Ala Ser Leu His Val Glu
          2900                2905                2910
Glu Lys Ala Asn Cys Phe Thr Glu Glu Leu Thr Asn Leu Gln Val Glu
          2915              - 2920                2925
Glu Lys Gly Thr Ala Val Phe Thr Cys Lys Thr Glu His Pro Ala Ala
     2930                2935                2940
Thr Val Thr Trp Arg Lys Gly Leu Leu Glu Leu Arg Ala Ser Gly Lys
2945                2950                2955                2960
His Gln Pro Ser Gln Glu Gly Leu Thr Leu Arg Leu Thr Ile Ser Ala
          2965                2970                2975
Leu Glu Lys Ala Asp Ser Asp Thr Tyr Thr Cys Asp Ile Gly Gln Ala
          2980                2985                2990
Gln Ser Arg Ala Gln Leu Leu Val Gln Gly Arg Arg Val His Ile Ile
     2995                3000                3005
Glu Asp Leu Glu Asp Val Asp Val Gln Glu Gly Ser Ser Ala Thr Phe
     3010                3015                3020
Arg Cys Arg Ile Ser Pro Ala Asn Tyr Glu Pro Val His Trp Phe Leu
3025                3030                3035                3040
Asp Lys Thr Pro Leu His Ala Asn Glu Leu Asn Glu Ile Asp Ala Gln
          3045                3050                3055
Pro Gly Gly Tyr His Val Leu Thr Leu Arg Gln Leu Ala Leu Lys Asp
          3060                3065                3070
Ser Gly Thr Ile Tyr Phe Glu Ala Gly Asp Gln Arg Ala Ser Ala Ala
          3075                3080                3085
Leu Arg Val Thr Glu Lys Pro Ser Val Phe Ser Arg Glu Leu Thr Asp
          3090                3095                3100
Ala Thr Ile Thr Glu Gly Glu Asp Leu Thr Leu Val Cys Glu Thr Ser
3105                3110                3115                3120
Thr Cys Asp Ile Pro Met Cys Trp Thr Lys Asp Gly Lys Thr Leu Arg
          3125                3130                3135
Gly Ser Ala Arg Cys Gln Leu Ser His Glu Gly His Arg Ala Gln Leu
          3140                3145                3150
Leu Ile Thr Gly Ala Thr Leu Gln Asp Ser Gly Arg Tyr Lys Cys Glu
          3155                3160                3165
Ala Gly Gly Ala Cys Ser Ser Ser Ile Val Arg Val His Ala Arg Pro
          3170                3175                3180
Val Arg Phe Gln Glu Ala Leu Lys Asp Leu Glu Val Leu Glu Gly Gly
3185                3190                3195                3200
Ala Ala Thr Leu Arg Cys Val Leu Ser Ser Val Ala Ala Pro Val Lys
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                3205                    3210                    3215
Trp Cys Tyr Gly Asn Asn Val Leu Arg Pro Gly Asp Lys Tyr Ser Leu
                3220                    3225                3230
Arg Gln Glu Gly Ala Met Leu Glu Leu Val Val Arg Asn Leu Arg Pro
            3235                    3240                    3245
Gln Asp Ser Gly Arg Tyr Ser Cys Ser Phe Gly Asp Gln Thr Thr Ser
        3250                    3255                3260
Ala Thr Leu Thr Val Thr Ala Leu Pro Ala Gln Phe Ile Gly Lys Leu
3265                    3270                    3275                3280
Arg Asn Lys Glu Ala Thr Glu Gly Ala Thr Ala Thr Leu Arg Cys Glu
                3285                    3290                    3295
Leu Ser Lys Thr Ala Pro Val Glu Trp Arg Lys Gly Ser Glu Thr Leu
                3300                    3305                3310
Arg Asp Gly Asp Arg Tyr Cys Leu Arg Gln Asp Gly Ala Met Cys Glu
            3315                    3320                    3325
Leu Gln Ile Arg Gly Leu Ala Met Val Asp Ala Ala Glu Tyr Ser Cys
        3330                    3335                3340
Val Cys Gly Glu Glu Arg Thr Ser Ala Ser Leu Thr Ile Arg Pro Met
3345                    3350                    3355                3360
Pro Ala His Phe Ile Gly Arg Leu Arg His Gln Glu Ser Ile Glu Gly
                3365                    3370                3375
Ala Thr Ala Thr Leu Arg Cys Glu Leu Ser Lys Ala Ala Pro Val Glu
                3380                    3385                    3390
Trp Arg Lys Gly Arg Glu Ser Leu Arg Asp Gly Asp Arg His Ser Leu
                3395                    3400                3405
Arg Gln Asp Gly Ala Val Cys Glu Leu Gln Ile Cys Gly Leu Ala Val
            3410                    3415                3420
Ala Asp Ala Gly Glu Tyr Ser Cys Val Cys Gly Glu Glu Arg Thr Ser
3425                    3430                    3435                3440
Ala Thr Leu Thr Val Lys Ala Leu Pro Ala Lys Phe Thr Glu Gly Leu
                3445                    3450                3455
Arg Asn Glu Glu Ala Val Glu Gly Ala Thr Ala Met Leu Trp Cys Glu
                3460                    3465                3470
Leu Ser Lys Val Ala Pro Val Glu Trp Arg Lys Gly Pro Glu Asn Leu
            3475                    3480                3485
Arg Asp Gly Asp Arg Tyr Ile Leu Arg Gln Glu Gly Thr Arg Cys Glu
        3490                    3495                3500
Leu Gln Ile Cys Gly Leu Ala Met Ala Asp Ala Gly Glu Tyr Leu Cys
3505                    3510                    3515                3520
Val Cys Gly Gln Glu Arg Thr Ser Ala Thr Leu Thr Ile Arg Ala Leu
                3525                    3530                3535
Pro Ala Arg Phe Ile Glu Asp Val Lys Asn Gln Glu Ala Arg Glu Gly
            3540                    3545                3550
Ala Thr Ala Val Leu Gln Cys Glu Leu Asn Ser Ala Ala Pro Val Glu
        3555                    3560                3565
Trp Arg Lys Gly Ser Glu Thr Leu Arg Asp Gly Asp Arg Tyr Ser Leu
        3570                    3575                3580
Arg Gln Asp Gly Thr Lys Cys Glu Leu Gln Ile Arg Gly Leu Ala Met
3585                    3590                    3595                3600
Ala Asp Thr Gly Glu Tyr Ser Cys Val Cys Gly Gln Glu Arg Thr Ser
                3605                    3610                3615
Ala Met Leu Thr Val Arg Ala Leu Pro Ile Lys Phe Thr Glu Gly Leu
            3620                    3625                3630
Arg Asn Glu Glu Ala Thr Glu Gly Ala Thr Ala Val Leu Arg Cys Glu
        3635                    3640                3645
Leu Ser Lys Met Ala Pro Val Glu Trp Trp Lys Gly His Glu Thr Leu
        3650                    3655                3660
Arg Asp Gly Asp Arg His Ser Leu Arg Gln Asp Gly Ala Arg Cys Glu
3665                    3670                    3675                3680
Leu Gln Ile Arg Gly Leu Val Ala Glu Asp Ala Gly Glu Tyr Leu Cys
                3685                    3690                3695
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Met Cys Gly Lys Glu Arg Thr Ser Ala Met Leu Thr Val Arg Ala Met
                3700   3705   3710
Pro Ser Lys Phe Ile Glu Gly Leu Arg Asn Glu Glu Ala Thr Glu Gly
                3715   3720   3725
Asp Thr Ala Thr Leu Trp Cys Glu Leu Ser Lys Ala Ala Pro Val Glu
            3730   3735   3740
Trp Arg Lys Gly His Glu Thr Leu Arg Asp Gly Asp Arg His Ser Leu
3745   3750   3755   3760
Arg Gln Asp Gly Ser Arg Cys Glu Leu Gln Ile Arg Gly Leu Ala Val
                3765   3770   3775
Val Asp Ala Gly Glu Tyr Ser Cys Val Cys Gly Gln Glu Arg Thr Ser
            3780   3785   3790
Ala Thr Leu Thr Val Arg Ala Leu Pro Ala Arg Phe Ile Glu Asp Val
        3795   3800   3805
Lys Asn Gln Glu Ala Arg Glu Gly Ala Thr Ala Val Leu Gln Cys Glu
3810   3815   3820
Leu Ser Lys Ala Ala Pro Val Glu Trp Arg Lys Gly Ser Glu Thr Leu
3825   3830   3835   3840
Arg Gly Gly Asp Arg Tyr Ser Leu Arg Gln Asp Gly Thr Arg Cys Glu
                3845   3850   3855
Leu Gln Ile His Gly Leu Ser Val Ala Asp Thr Gly Glu Tyr Ser Cys
            3860   3865   3870
Val Cys Gly Gln Glu Arg Thr Ser Ala Thr Leu Thr Val Arg Ala Pro
            3875   3880   3885
Gln Pro Val Phe Arg Glu Pro Leu Gln Ser Leu Gln Ala Glu Glu Gly
        3890   3895   3900
Ser Thr Ala Thr Leu Gln Cys Glu Leu Ser Glu Pro Thr Ala Thr Val
3905   3910   3915   3920
Val Trp Ser Lys Gly Gly Leu Gln Leu Gln Ala Asn Gly Arg Arg Glu
            3925   3930   3935
Pro Arg Leu Gln Gly Cys Thr Ala Glu Leu Val Leu Gln Asp Leu Gln
        3940   3945   3950
Arg Glu Asp Thr Gly Glu Tyr Thr Cys Thr Cys Gly Ser Gln Ala Thr
        3955   3960   3965
Ser Ala Thr Leu Thr Val Thr Ala Ala Pro Val Arg Phe Leu Arg Glu
        3970   3975   3980
Leu Gln His Gln Glu Val Asp Glu Gly Gly Thr Ala His Leu Cys Cys
3985   3990   3995   4000
Glu Leu Ser Arg Ala Gly Ala Ser Val Glu Trp Arg Lys Gly Ser Leu
                4005   4010   4015
Gln Leu Phe Pro Cys Ala Lys Tyr Gln Met Val Gln Asp Gly Ala Ala
            4020   4025   4030
Ala Glu Leu Leu Val Arg Gly Val Glu Gln Glu Asp Ala Gly Asp Tyr
        4035   4040   4045
Thr Cys Asp Thr Gly His Thr Gln Ser Met Ala Ser Leu Ser Val Arg
        4050   4055   4060
Val Pro Arg Pro Lys Phe Lys Thr Arg Leu Gln Ser Leu Glu Gln Glu
4065   4070   4075   4080
Thr Gly Asp Ile Ala Arg Leu Cys Cys Gln Leu Ser Asp Ala Glu Ser
                4085   4090   4095
Gly Ala Val Val Gln Trp Leu Lys Glu Gly Val Glu Leu His Ala Gly
            4100   4105   4110
Pro Lys Tyr Glu Met Arg Ser Gln Gly Ala Thr Arg Glu Leu Leu Ile
        4115   4120   4125
His Gln Leu Glu Ala Lys Asp Thr Gly Glu Tyr Ala Cys Val Thr Gly
        4130   4135   4140
Gly Gln Lys Thr Ala Ala Ser Leu Arg Val Thr Glu Pro Glu Val Thr
4145   4150   4155   4160
Ile Val Arg Gly Leu Val Asp Ala Glu Val Thr Ala Asp Glu Asp Val
            4165   4170   4175
Glu Phe Ser Cys Glu Val Ser Arg Ala Gly Ala Thr Gly Val Gln Trp

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                 4180                    4185                    4190
Cys Leu Gln Gly Leu Pro Leu Gln Ser Asn Glu Val Thr Glu Val Ala
            4195                    4200                    4205
Val Arg Asp Gly Arg Ile His Thr Leu Arg Leu Lys Gly Val Thr Pro
       4210                    4215                    4220
Glu Asp Ala Gly Thr Val Ser Phe His Leu Gly Asn His Ala Ser Ser
  4225                    4230                    4235                    4240
Ala Gln Leu Thr Val Arg Ala Pro Glu Val Thr Ile Leu Glu Pro Leu
                 4245                    4250                    4255
Gln Asp Val Gln Leu Ser Glu Gly Gln Asp Ala Ser Phe Gln Cys Arg
            4260                    4265                    4270
Leu Ser Arg Ala Ser Gly Gln Glu Ala Arg Trp Ala Leu Gly Gly Val
       4275                    4280                    4285
Pro Leu Gln Ala Asn Glu Met Asn Asp Ile Thr Val Glu Gln Gly Thr
       4290                    4295                    4300
Leu His Leu Leu Thr Leu His Lys Val Thr Leu Glu Asp Ala Gly Thr
  4305                    4310                    4315                    4320
Val Ser Phe His Val Gly Thr Cys Ser Ser Glu Ala Gln Leu Lys Val
            4325                    4330                    4335
Thr Ala Lys Asn Thr Val Val Arg Gly Leu Glu Asn Val Glu Ala Leu
            4340                    4345                    4350
Glu Gly Gly Glu Ala Leu Phe Glu Cys Gln Leu Ser Gln Pro Glu Val
            4355                    4360                    4365
Ala Ala His Thr Trp Leu Leu Asp Asp Glu Pro Val Arg Thr Ser Glu
       4370                    4375                    4380
Asn Ala Glu Val Val Phe Phe Glu Asn Gly Leu Arg His Leu Leu Leu
  4385                    4390                    4395                    4400
Leu Lys Asn Leu Arg Pro Gln Asp Ser Cys Arg Val Thr Phe Leu Ala
            4405                    4410                    4415
Gly Asp Met Val Thr Ser Ala Phe Leu Thr Val Arg Gly Trp Arg Leu
            4420                    4425                    4430
Glu Ile Leu Glu Pro Leu Lys Asn Ala Ala Val Arg Ala Gly Ala Gln
            4435                    4440                    4445
Ala Arg Phe Thr Cys Thr Leu Ser Glu Ala Val Pro Val Gly Glu Ala
       4450                    4455                    4460
Ser Trp Tyr Ile Asn Gly Ala Ala Val Gln Pro Asp Asp Ser Asp Trp
  4465                    4470                    4475                    4480
Thr Val Thr Ala Asp Gly Ser His Gln Ala Leu Leu Leu Arg Ser Ala
       4485                    4490                    4495
Gln Pro His His Ala Gly Glu Val Thr Phe Ala Cys Arg Asp Ala Val
            4500                    4505                    4510
Ala Ser Ala Arg Leu Thr Val Leu Gly Leu Pro Asp Pro Pro Glu Asp
       4515                    4520                    4525
Ala Glu Val Val Ala His Ser Ser His Thr Val Thr Leu Ser Trp Ala
       4530                    4535                    4540
Ala Pro Met Ser Asp Gly Gly Gly Gly Leu Cys Gly Tyr Arg Val Glu
  4545                    4550                    4555                    4560
Val Lys Glu Gly Ala Thr Gly Gln Trp Arg Leu Cys His Glu Leu Val
            4565                    4570                    4575
Pro Gly Pro Glu Cys Val Val Asp Gly Leu Ala Pro Gly Glu Thr Tyr
            4580                    4585                    4590
Arg Phe Arg Val Ala Ala Val Gly Pro Val Gly Ala Gly Glu Pro Val
       4595                    4600                    4605
His Leu Pro Gln Thr Val Arg Leu Ala Glu Pro Pro Lys Pro Val Pro
       4610                    4615                    4620
Pro Gln Pro Ser Ala Pro Glu Ser Arg Gln Val Ala Ala Gly Glu Asp
  4625                    4630                    4635                    4640
Val Ser Leu Glu Leu Glu Val Val Ala Glu Ala Gly Glu Val Ile Trp
            4645                    4650                    4655
His Lys Gly Met Glu Arg Ile Gln Pro Gly Gly Arg Phe Glu Val Val
            4660                    4665                    4670
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Ser Gln Gly Arg Gln Gln Met Leu Val Ile Lys Gly Phe Thr Ala Glu
        4675            4680              4685
Asp Gln Gly Glu Tyr His Cys Gly Leu Ala Gln Gly Ser Ile Cys Pro
    4690            4695              4700
Ala Ala Ala Thr Phe Gln Val Ala Leu Ser Pro Ala Ser Val Asp Glu
4705                4710              4715                4720
Ala Pro Gln Pro Ser Leu Pro Pro Glu Ala Ala Gln Glu Gly Asp Leu
            4725            4730              4735
His Leu Leu Trp Glu Ala Leu Ala Arg Lys Arg Arg Met Ser Arg Glu
        4740            4745              4750
Pro Thr Leu Asp Ser Ile Ser Glu Leu Pro Glu Glu Asp Gly Arg Ser
        4755            4760              4765
Gln Arg Leu Pro Gln Glu Ala Glu Glu Val Ala Pro Asp Leu Ser Glu
        4770            4775              4780
Gly Tyr Ser Thr Ala Asp Glu Leu Ala Arg Thr Gly Asp Ala Asp Leu
4785                4790              4795                4800
Ser His Thr Ser Ser Asp Asp Glu Ser Arg Ala Gly Thr Pro Ser Leu
            4805            4810              4815
Val Thr Tyr Leu Lys Lys Ala Gly Arg Pro Gly Thr Ser Pro Leu Ala
        4820            4825              4830
Ser Lys Val Gly Ala Pro Ala Ala Pro Ser Val Lys Pro Gln Gln Gln
        4835            4840              4845
Gln Glu Pro Leu Ala Ala Val Arg Pro Pro Leu Gly Asp Leu Ser Thr
        4850            4855              4860
Lys Asp Leu Gly Asp Pro Ser Met Asp Lys Ala Ala Val Lys Ile Gln
4865                4870              4875                4880
Ala Ala Phe Lys Gly Tyr Lys Val Arg Lys Glu Met Lys Gln Gln Glu
            4885            4890              4895
Gly Pro Met Phe Ser His Thr Phe Gly Asp Thr Glu Ala Gln Val Gly
        4900            4905              4910
Asp Ala Leu Arg Leu Glu Cys Val Val Ala Ser Lys Ala Asp Val Arg
        4915            4920              4925
Ala Arg Trp Leu Lys Asp Gly Val Glu Leu Thr Asp Gly Arg His His
        4930            4935              4940
His Ile Asp Gln Leu Gly Asp Gly Thr Cys Ser Leu Leu Ile Ala Gly
4945                4950              4955                4960
Leu Asp Arg Ala Asp Ala Gly Cys Tyr Thr Cys Gln Val Ser Asn Lys
            4965            4970              4975
Phe Gly Gln Val Thr His Ser Ala Cys Val Val Val Ser Gly Ser Glu
        4980            4985              4990
Ser Glu Ala Glu Ser Ser Gly Gly Glu Leu Asp Asp Ala Phe Arg
            4995            5000              5005
Arg Ala Ala Arg Arg Leu His Arg Leu Phe Arg Thr Lys Ser Pro Ala
    5010            5015              5020
Glu Val Ser Asp Glu Glu Leu Phe Leu Ser Ala Asp Glu Gly Pro Ala
5025                5030              5035                5040
Glu Pro Glu Glu Pro Ala Asp Trp Gln Thr Tyr Arg Glu Asp Glu His
            5045            5050              5055
Phe Ile Cys Ile Arg Phe Glu Ala Leu Thr Glu Ala Arg Gln Ala Val
        5060            5065              5070
Thr Arg Phe Gln Glu Met Phe Ala Thr Leu Gly Ile Gly Val Glu Ile
        5075            5080              5085
Lys Leu Val Glu Gln Gly Pro Arg Arg Val Glu Met Cys Ile Ser Lys
        5090            5095              5100
Glu Thr Pro Ala Pro Val Val Pro Pro Glu Pro Leu Pro Ser Leu Leu
5105                5110              5115                5120
Thr Ser Asp Ala Ala Pro Val Phe Leu Thr Glu Leu Gln Asn Gln Glu
            5125            5130              5135
Val Gln Asp Gly Tyr Pro Val Ser Phe Asp Cys Val Val Thr Gly Gln
        5140            5145              5150
Pro Met Pro Ser Val Arg Trp Phe Lys Asp Gly Lys Leu Leu Glu Glu
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63

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                5155                    5160                    5165
     Asp Asp His Tyr Met Ile Asn Glu Asp Gln Gln Gly Gly His Gln Leu
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     Ile Ile Thr Ala Val Val Pro Ala Asp Met Gly Val Tyr Arg Cys Leu
     5185                    5190                    5195                    5200
     Ala Glu Asn Ser Met Gly Val Ser Ser Thr Lys Ala Glu Leu Arg Val
                    5205                    5210                    5215
     Asp Leu Thr Ser Thr Asp Tyr Asp Thr Ala Ala Asp Ala Thr Glu Ser
                    5220                    5225                    5230
     Ser Ser Tyr Phe Ser Ala Gln Gly Tyr Leu Ser Ser Arg Glu Gln Glu
              5235                    5240                    5245
     Gly Thr Glu Ser Thr Thr Asp Glu Gly Gln Leu Pro Gln Val Val Glu
          5250                    5255                    5260
     Glu Leu Arg Asp Leu Gln Val Ala Pro Gly Thr Arg Leu Ala Lys Phe
     5265                    5270                    5275                    5280
     Gln Leu Lys Val Lys Gly Tyr Pro Ala Pro Arg Leu Tyr Trp Phe Lys
                    5285                    5290                    5295
     Asp Gly Gln Pro Leu Thr Ala Ser Ala His Ile Arg Met Thr Gly Lys
                    5300                    5305                    5310
     Lys Ile Leu His Thr Leu Glu Ile Ile Ser Val Thr Arg Glu Asp Ser
              5315                    5320                    5325
     Gly Gln Tyr Ala Ala Tyr Ile Ser Asn Ala Met Gly Ala Ala Tyr Ser
          5330                    5335                    5340
     Ser Ala Arg Leu Leu Val Arg Gly Pro Asp Glu Pro Glu Glu Lys Pro
     5345                    5350                    5355                    5360
     Ala Ser Asp Val His Glu Gln Leu Val Pro Pro Arg Met Leu Glu Arg
                    5365                    5370                    5375
     Phe Thr Pro Lys Lys Val Lys Lys Gly Ser Ser Ile Thr Phe Ser Val
                    5380                    5385                    5390
     Lys Val Glu Gly Arg Pro Val Pro Thr Val His Trp Leu Arg Glu Glu
              5395                    5400                    5405
     Ala Glu Arg Gly Val Leu Trp Ile Gly Pro Asp Thr Pro Gly Tyr Thr
          5410                    5415                    5420
     Val Ala Ser Ser Ala Gln Gln His Ser Leu Val Leu Leu Asp Val Gly
     5425                    5430                    5435                    5440
     Arg Gln His Gln Gly Thr Tyr Thr Cys Ile Ala Ser Asn Ala Ala Gly
                    5445                    5450                    5455
     Gln Ala Leu Cys Ser Ala Ser Leu His Val Ser Gly Leu Pro Lys Val
                    5460                    5465                    5470
     Glu Glu Gln Glu Lys Val Lys Glu Ala Leu Ile Ser Thr Phe Leu Gln
              5475                    5480                    5485
     Gly Thr Thr Gln Ala Ile Ser Ala Gln Gly Leu Glu Thr Ala Ser Phe
          5490                    5495                    5500
     Ala Asp Leu Gly Gly Gln Arg Lys Glu Glu Pro Leu Ala Ala Lys Glu
     5505                    5510                    5515                    5520
     Ala Leu Gly His Leu Ser Leu Ala Glu Val Gly Thr Glu Glu Phe Leu
                    5525                    5530                    5535
     Gln Lys Leu Thr Ser Gln Ile Thr Glu Met Val Ser Ala Lys Ile Thr
              5540                    5545                    5550
     Gln Ala Lys Leu Gln Val Pro Gly Gly Asp Ser Asp Glu Asp Ser Lys
          5555                    5560                    5565
     Thr Pro Ser Ala Ser Pro Arg His Gly Arg Ser Arg Pro Ser Ser Ser
          5570                    5575                    5580
     Ile Gln Glu Ser Ser Ser Glu Ser Glu Asp Gly Asp Ala Arg Gly Glu
     5585                    5590                    5595                    5600
     Ile Phe Asp Ile Tyr Val Val Thr Ala Asp Tyr Leu Pro Leu Gly Ala
                    5605                    5610                    5615
     Glu Gln Asp Ala Ile Thr Leu Arg Glu Gly Gln Tyr Val Glu Val Leu
              5620                    5625                    5630
     Asp Ala Ala His Pro Leu Arg Trp Leu Val Arg Thr Lys Pro Thr Lys
              5635                    5640                    5645
```

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Ser Ser Pro Ser Arg Gln Gly Trp Val Ser Pro Ala Tyr Leu Asp Arg
   5650   5655   5660

Arg Leu Lys Leu Ser Pro Glu Trp Gly Ala Ala Glu Ala Pro Glu Phe
5665   5670   5675   5680

Pro Gly Glu Ala Val Ser Glu Asp Glu Tyr Lys Ala Arg Leu Ser Ser
        5685   5690   5695

Val Ile Gln Glu Leu Leu Ser Ser Glu Gln Ala Phe Val Glu Glu Leu
       5700   5705   5710

Gln Phe Leu Gln Ser His His Leu Gln His Leu Glu Arg Cys Pro His
       5715   5720   5725

Val Pro Ile Ala Val Ala Gly Gln Lys Ala Val Ile Phe Arg Asn Val
       5730   5735   5740

Arg Asp Ile Gly Arg Phe His Ser Ser Phe Leu Gln Glu Leu Gln Gln
5745   5750   5755   5760

Cys Asp Thr Asp Asp Asp Val Ala Met Cys Phe Ile Lys Asn Gln Ala
       5765   5770   5775

Ala Phe Glu Gln Tyr Leu Glu Phe Leu Val Gly Arg Val Gln Ala Glu
       5780   5785   5790

Ser Val Val Val Ser Thr Ala Ile Gln Glu Phe Tyr Lys Lys Tyr Ala
       5795   5800   5805

Glu Glu Ala Leu Leu Ala Gly Asp Pro Ser Gln Pro Pro Pro Pro Pro
       5810   5815   5820

Leu Gln His Tyr Leu Glu Gln Pro Val Glu Arg Val Gln Arg Tyr Gln
 5825   5830   5835   5840

Ala Leu Leu Lys Glu Leu Ile Arg Asn Lys Ala Arg Asn Arg Gln Asn
       5845   5850   5855

Cys Ala Leu Leu Glu Gln Ala Tyr Ala Val Val Ser Ala Leu Pro Gln
       5860   5865   5870

Arg Ala Glu Asn Lys Leu His Val Ser Leu Met Glu Asn Tyr Pro Gly
       5875   5880   5885

Thr Leu Glu Ala Leu Gly Glu Pro Ile Arg Gln Gly His Phe Ile Val
       5890   5895   5900

Trp Glu Gly Ala Pro Gly Ala Arg Met Pro Trp Lys Gly His Asn Arg
 5905   5910   5915   5920

His Val Phe Leu Phe Arg Asn His Leu Val Ile Cys Lys Pro Arg Arg
       5925   5930   5935

Asp Ser Arg Thr Asp Thr Val Ser Tyr Val Phe Arg Asn Met Met Lys
       5940   5945   5950

Leu Ser Ser Ile Asp Leu Asn Asp Gln Val Glu Gly Asp Asp Arg Ala
       5955   5960   5965

Phe Glu Val Trp Gln Glu Arg Glu Asp Ser Val Arg Lys Tyr Leu Leu
       5970   5975   5980

Gln Ala Arg Thr Ala Ile Ile Lys Ser Ser Trp Val Lys Glu Ile Cys
5985   5990   5995   6000

Gly Ile Gln Gln Arg Leu Ala Leu Pro Val Trp Arg Pro Pro Asp Phe
       6005   6010   6015

Glu Glu Glu Leu Ala Asp Cys Thr Ala Glu Leu Gly Glu Thr Val Lys
       6020   6025   6030

Leu Ala Cys Arg Val Thr Gly Thr Pro Lys Pro Val Ile Ser Trp Tyr
       6035   6040   6045

Lys Asp Gly Lys Ala Val Gln Val Asp Pro His His Ile Leu Ile Glu
       6050   6055   6060

Asp Pro Asp Gly Ser Cys Ala Leu Ile Leu Asp Ser Leu Thr Gly Val
6065   6070   6075   6080

Asp Ser Gly Gln Tyr Met Cys Phe Ala Ala Ser Ala Ala Gly Asn Cys
       6085   6090   6095

Ser Thr Leu Gly Lys Ile Leu Val Gln Val Pro Pro Arg Phe Val Asn
       6100   6105   6110

Lys Val Arg Ala Ser Pro Phe Val Glu Gly Glu Asp Ala Gln Phe Thr
       6115   6120   6125

Cys Thr Ile Glu Gly Ala Pro Tyr Pro Gln Ile Arg Trp Tyr Lys Asp

65

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Gly Ala Leu Leu Thr Thr Gly Asn Lys Phe Gln Thr Leu Ser Glu Pro
6145                6150                    6155                    6160
Arg Ser Gly Leu Leu Val Leu Val Ile Arg Ala Ala Ser Lys Glu Asp
                6165                    6170                6175
Leu Gly Leu Tyr Glu Cys Glu Leu Val Asn Arg Leu Gly Ser Ala Arg
                    6180                6185                6190
Ala Ser Ala Glu Leu Arg Ile Gln Ser Pro Met Leu Gln Ala Gln Glu
            6195                6200                6205
Gln Cys His Arg Glu Gln Leu Val Ala Ala Val Glu Asp Thr Thr Leu
        6210                6215                6220
Glu Arg Ala Asp Gln Glu Val Thr Ser Val Leu Lys Arg Leu Leu Gly
6225                6230                    6235                    6240
Pro Lys Ala Pro Gly Pro Ser Thr Gly Asp Leu Thr Gly Pro Gly Pro
                6245                    6250                6255
Cys Pro Arg Gly Ala Pro Ala Leu Gln Glu Thr Gly Ser Gln Pro Pro
                6260                    6265                6270
Val Thr Gly Thr Ser Glu Ala Pro Ala Val Pro Pro Arg Val Pro Gln
            6275                6280                6285
Pro Leu Leu His Glu Gly Pro Glu Gln Glu Pro Glu Ala Ile Ala Arg
        6290                6295                6300
Ala Gln Glu Trp Thr Val Pro Ile Arg Met Glu Gly Ala Ala Trp Pro
6305                6310                    6315                    6320
Gly Ala Gly Thr Gly Glu Leu Leu Trp Asp Val His Ser His Val Val
                6325                    6330                6335
Arg Glu Thr Thr Gln Arg Thr Tyr Thr Tyr Gln Ala Ile Asp Thr His
                6340                    6345                6350
Thr Ala Arg Pro Pro Ser Met Gln Val Thr Ile Glu Asp Val Gln Ala
            6355                6360                6365
Gln Thr Gly Gly Thr Ala Gln Phe Glu Ala Ile Ile Glu Gly Asp Pro
        6370                6375                6380
Gln Pro Ser Val Thr Trp Tyr Lys Asp Ser Val Gln Leu Val Asp Ser
    6385                6390                    6395                    6400
Thr Arg Leu Ser Gln Gln Gln Glu Gly Thr Thr Tyr Ser Leu Val Leu
                6405                    6410                6415
Arg His Val Ala Ser Lys Asp Ala Gly Val Tyr Thr Cys Leu Ala Gln
                6420                    6425                6430
Asn Thr Gly Gly Gln Val Leu Cys Lys Ala Glu Leu Leu Val Leu Gly
            6435                6440                6445
Gly Asp Asn Glu Pro Asp Ser Glu Lys Gln Ser His Arg Arg Lys Leu
        6450                6455                6460
His Ser Phe Tyr Glu Val Lys Glu Glu Ile Gly Arg Gly Val Phe Gly
6465                6470                    6475                    6480
Phe Val Lys Arg Val Gln His Lys Gly Asn Lys Ile Leu Cys Ala Ala
                6485                    6490                6495
Lys Phe Ile Pro Leu Arg Ser Arg Thr Arg Ala Gln Ala Tyr Arg Glu
            6500                6505                6510
Arg Asp Ile Leu Ala Ala Leu Ser His Pro Leu Val Thr Gly Leu Leu
        6515                6520                6525
Asp Gln Phe Glu Thr Arg Lys Thr Leu Ile Leu Ile Leu Glu Leu Cys
    6530                6535                6540
Ser Ser Glu Glu Leu Leu Asp Arg Leu Tyr Arg Lys Gly Val Val Thr
6545                6550                    6555                    6560
Glu Ala Glu Val Lys Val Tyr Ile Gln Gln Leu Val Glu Gly Leu His
                6565                    6570                6575
Tyr Leu His Ser His Gly Val Leu His Leu Asp Ile Lys Pro Ser Asn
            6580                6585                6590
Ile Leu Met Val His Pro Ala Arg Glu Asp Ile Lys Ile Cys Asp Phe
        6595                6600                6605
Gly Phe Ala Gln Asn Ile Thr Pro Ala Glu Leu Gln Phe Ser Gln Tyr
        6610                6615                6620
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66

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Gly Ser Pro Glu Phe Val Ser Pro Glu Ile Ile Gln Gln Asn Pro Val
6625               6630              6635                      6640
Ser Glu Ala Ser Asp Ile Trp Ala Met Gly Val Ile Ser Tyr Leu Ser
                6645              6650                  6655
Leu Thr Cys Ser Ser Pro Phe Ala Gly Glu Ser Asp Arg Ala Thr Leu
            6660              6665              6670
Leu Asn Val Leu Glu Gly Arg Val Ser Trp Ser Ser Pro Met Ala Ala
        6675              6680              6685
His Leu Ser Glu Asp Ala Lys Asp Phe Ile Lys Ala Thr Leu Gln Arg
    6690              6695              6700
Ala Pro Gln Ala Arg Pro Ser Ala Ala Gln Cys Leu Ser His Pro Trp
6705              6710              6715                      6720
Phe Leu Lys Ser Met Pro Ala Glu Glu Ala His Phe Ile Asn Thr Lys
            6725              6730              6735
Gln Leu Lys Phe Leu Leu Ala Arg Ser Arg Trp Gln Arg Ser Leu Met
            6740              6745              6750
Ser Tyr Lys Ser Ile Leu Val Met Arg Ser Ile Pro Glu Leu Leu Arg
    6755              6760              6765
Gly Pro Pro Asp Ser Pro Ser Leu Gly Val Ala Arg His Leu Cys Arg
    6770              6775              6780
Asp Thr Gly Gly Ser Ser Ser Ser Ser Ser Ser Asp Asn Glu Leu
6785              6790              6795                      6800
Ala Pro Phe Ala Arg Ala Lys Ser Leu Pro Pro Ser Pro Val Thr His
            6805              6810              6815
Ser Pro Leu Leu His Pro Arg Gly Phe Leu Arg Pro Ser Ala Ser Leu
            6820              6825              6830
Pro Glu Glu Ala Glu Ala Ser Glu Arg Ser Thr Glu Ala Pro Ala Pro
    6835              6840              6845
Pro Ala Ser Pro Glu Gly Ala Gly Pro Ala Ala Gln Gly Cys Val
    6850              6855              6860
Pro Arg His Ser Val Ile Arg Ser Leu Phe Tyr His Gln Ala Gly Glu
6865              6870              6875                      6880
Ser Pro Glu His Gly Ala Leu Ala Pro Gly Ser Arg Arg His Pro Ala
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Arg Arg Arg His Leu Leu Lys Gly Gly Tyr Ile Ala Gly Ala Leu Pro
        6900              6905              6910
Gly Leu Arg Glu Pro Leu Met Glu His Arg Val Leu Glu Glu Glu Ala
        6915              6920              6925
Ala Arg Glu Glu Gln Ala Thr Leu Leu Ala Lys Ala Pro Ser Phe Glu
    6930              6935              6940
Thr Ala Leu Arg Leu Pro Ala Ser Gly Thr His Leu Ala Pro Gly His
6945              6950              6955                      6960
Ser His Ser Leu Glu His Asp Ser Pro Ser Thr Pro Arg Pro Ser Ser
            6965              6970              6975
Glu Ala Cys Gly Glu Ala Gln Arg Leu Pro Ser Ala Pro Ser Gly Gly
            6980              6985              6990
Ala Pro Ile Arg Asp Met Gly His Pro Gln Gly Ser Lys Gln Leu Pro
    6995              7000              7005
Ser Thr Gly Gly His Pro Gly Thr Ala Gln Pro Glu Arg Pro Ser Pro
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Asp Ser Pro Trp Gly Gln Pro Ala Pro Phe Cys His Pro Lys Gln Gly
7025              7030              7035                      7040
Ser Ala Pro Gln Glu Gly Cys Ser Pro His Pro Ala Val Ala Pro Cys
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Pro Pro Gly Ser Phe Pro Pro Gly Ser Cys Lys Glu Ala Pro Leu Val
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Pro Ser Ser Pro Phe Leu Gly Gln Pro Gln Ala Pro Pro Ala Pro Ala
    7075              7080              7085
Lys Ala Ser Pro Pro Leu Asp Ser Lys Met Gly Pro Gly Asp Ile Ser
    7090              7095              7100
Leu Pro Gly Arg Pro Lys Pro Gly Pro Cys Ser Ser Pro Gly Ser Ala
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       7105                  7110                      7115                        7120
    Ser Gln Ala Ser Ser Ser Gln Val Ser Ser Leu Arg Val Gly Ser Ser
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    Gln Val Gly Thr Glu Pro Gly Pro Ser Leu Asp Ala Glu Gly Trp Thr
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    Gln Glu Ala Glu Asp Leu Ser Asp Ser Thr Pro Thr Leu Gln Arg Pro
                7155                    7160                    7165
    Gln Glu Gln Ala Thr Met Arg Lys Phe Ser Leu Gly Gly Arg Gly Gly
            7170                    7175                    7180
    Tyr Ala Gly Val Ala Gly Tyr Gly Thr Phe Ala Phe Gly Gly Asp Ala
    7185                    7190                    7195                        7200
    Gly Gly Met Leu Gly Gln Gly Pro Met Trp Ala Arg Ile Ala Trp Ala
                    7205                    7210                    7215
    Val Ser Gln Ser Glu Glu Glu Gln Glu Glu Ala Arg Ala Glu Ser
                7220                    7225                    7230
    Gln Ser Glu Glu Gln Gln Glu Ala Arg Ala Glu Ser Pro Leu Pro Gln
            7235                    7240                    7245
    Val Ser Ala Arg Pro Val Pro Glu Val Gly Arg Ala Pro Thr Arg Ser
        7250                    7255                    7260
    Ser Pro Glu Pro Thr Pro Trp Glu Asp Ile Gly Gln Val Ser Leu Val
    7265                    7270                    7275                        7280
    Gln Ile Arg Asp Leu Ser Gly Asp Ala Glu Ala Ala Asp Thr Ile Ser
                    7285                    7290                    7295
    Leu Asp Ile Ser Glu Val Asp Pro Ala Tyr Leu Asn Leu Ser Asp Leu
                7300                    7305                    7310
    Tyr Asp Ile Lys Tyr Leu Pro Phe Glu Phe Met Ile Phe Arg Lys Val
                7315                    7320                    7325
    Pro Lys Ser Ala Gln Pro Glu Pro Pro Ser Pro Met Ala Glu Glu Glu
            7330                    7335                    7340
    Leu Ala Glu Phe Pro Glu Pro Thr Trp Pro Trp Pro Gly Glu Leu Gly
    7345                    7350                    7355                        7360
    Pro His Ala Gly Leu Glu Ile Thr Glu Glu Ser Glu Asp Val Asp Ala
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    Leu Leu Ala Glu Ala Ala Val Gly Arg Lys Arg Lys Trp Ser Ser Pro
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    Ser Arg Ser Leu Phe His Phe Pro Gly Arg His Leu Pro Leu Asp Glu
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    Pro Ala Glu Leu Gly Leu Arg Glu Arg Val Lys Ala Ser Val Glu His
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    Ile Ser Arg Ile Leu Lys Gly Arg Pro Glu Gly Leu Glu Lys Glu Gly
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    Pro Pro Arg Lys Lys Pro Gly Leu Ala Ser Phe Arg Leu Ser Gly Leu
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    Lys Ser Trp Asp Arg Ala Pro Thr Phe Leu Arg Glu Leu Ser Asp Glu
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    Thr Val Val Leu Gly Gln Ser Val Thr Leu Ala Cys Gln Val Ser Ala
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    Gln Pro Ala Ala Gln Ala Thr Trp Ser Lys Asp Gly Ala Pro Leu Glu
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    Ser Ser Ser Arg Val Leu Ile Ser Ala Thr Leu Lys Asn Phe Gln Leu
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    Leu Thr Ile Leu Val Val Val Ala Glu Asp Leu Gly Val Tyr Thr Cys
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    Ser Val Ser Asn Ala Leu Gly Thr Val Thr Thr Gly Val Leu Arg
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    Lys Ala Glu Arg Pro Ser Ser Ser Pro Cys Pro Asp Ile Gly Glu Val
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    Tyr Ala Asp Gly Val Leu Leu Val Trp Lys Pro Val Glu Ser Tyr Gly
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    Pro Val Thr Tyr Ile Val Gln Cys Ser Leu Glu Gly Gly Ser Trp Thr
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Thr Leu Ala Ser Asp Ile Phe Asp Cys Cys Tyr Leu Thr Ser Lys Leu
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Ser Arg Gly Gly Thr Tyr Thr Phe Arg Thr Ala Cys Val Ser Lys Ala
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Gly Met Gly Pro Tyr Ser Ser Pro Ser Glu Gln Val Leu Leu Gly Gly
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Pro Ser His Leu Ala Ser Glu Glu Ser Gln Gly Arg Ser Ala Gln
    7650   7655   7660
Pro Leu Pro Ser Thr Lys Thr Phe Ala Phe Gln Thr Gln Ile Gln Arg
7665   7670   7675   7680
Gly Arg Phe Ser Val Val Arg Gln Cys Trp Glu Lys Ala Ser Gly Arg
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Ala Leu Ala Ala Lys Ile Ile Pro Tyr His Pro Lys Asp Lys Thr Ala
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Val Leu Arg Glu Tyr Glu Ala Leu Lys Gly Leu Arg His Pro His Leu
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Ala Gln Leu His Ala Ala Tyr Leu Ser Pro Arg His Leu Val Leu Ile
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Leu Glu Leu Cys Ser Gly Pro Glu Leu Leu Pro Cys Leu Ala Glu Arg
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Ala Ser Tyr Ser Glu Ser Glu Val Lys Asp Tyr Leu Trp Gln Met Leu
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Ser Ala Thr Gln Tyr Leu His Asn Gln His Ile Leu His Leu Asp Leu
        7780   7785   7790
Arg Ser Glu Asn Met Ile Ile Thr Glu Tyr Asn Leu Leu Lys Val Val
        7795   7800   7805
Asp Leu Gly Asn Ala Gln Ser Leu Ser Gln Glu Lys Val Leu Pro Ser
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Asp Lys Phe Lys Asp Tyr Leu Glu Thr Met Ala Pro Glu Leu Leu Glu
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Gly Gln Gly Ala Val Pro Gln Thr Asp Ile Trp Ala Ile Gly Val Thr
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Ala Phe Ile Met Leu Ser Ala Glu Tyr Pro Val Ser Ser Glu Gly Ala
        7860   7865   7870
Arg Asp Leu Gln Arg Gly Leu Arg Lys Gly Leu Val Arg Leu Ser Arg
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Cys Tyr Ala Gly Leu Ser Gly Gly Ala Val Ala Phe Leu Arg Ser Thr
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Leu Cys Ala Gln Pro Trp Gly Arg Pro Cys Ala Ser Ser Cys Leu Gln
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Cys Pro Trp Leu Thr Glu Glu Gly Pro Ala Cys Ser Arg Pro Ala Pro
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Val Thr Phe Pro Thr Ala Arg Leu Arg Val Phe Val Arg Asn Arg Glu
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Lys Arg Arg Ala Leu Leu Tyr Lys Arg His Asn Leu Ala Gln Val Arg
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69

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<211> 17
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<220>
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<222> 1
<223> The L at position 1 can be I or V.

<221> VARIANT
<222> 3
<223> The amino acid at position 3 can be any amino acid
       except P.

<221> VARIANT
<222> 5
<223> The amino acid at position 5 can be any amino acid
       except P.

<221> VARIANT
<222> (6)...(0)
<223> The F at position 6 can be Y, W, M, G, S, T, N, or
      H.

<221> VARIANT
<222> 7
<223> The S at position 7 can be G or A.

<221> VARIANT
<222> 8
<223> The amino acid at position 8 can be any amino acid

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except P or W.

<221> VARIANT
<222> (9)...(9)
<223> The L at position 9 can be I, V, C, A, or T.

<221> VARIANT
<222> (10)...(10)
<223> The amino acd at position 10 can be any amino acid
        except P or D.

<221> VARIANT
<222> (11)...(11)
<223> The amino acid at position 11 can be any amino
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<221> VARIANT
<222> (12)...(12)
<223> The G at position 12 can be S, T, A,
        C, L, I, V, M, F, or Y.

<221> VARIANT
<222> (13)...(13)
<223> The amino acid at position 13 can be any amino
        acid and as few as 5, up to 18.

<221> VARIANT
<222> (14)...(14)
<223> The L at position 14 can be I, V, M, F, Y,
        W, C, S, T, A, or R.

<221> VARIANT
<222> (15)...(15)
<223> The A at position 15 can be I, V, or P.

<221> VARIANT
<222> (16)...(16)
<223> The L at position 16 can be I, V, M, F, A, G,
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 1   5   10   15
Lys

<210> 8
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT

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<222> 1
<223> The L at position 1 can be I, V, M, F, Y,
        or C.

<221> VARIANT
<222> 2
<223> The amino acid at position 2 can be any amino
        acid.

<221> VARIANT
<222> 3
<223> The H at position 3 can be Y.

<221> VARIANT
<222> 4
<223> The amino acid at position 4 can be any amino
        acid.

<221> VARIANT
<222> 6
<223> The L at position 6 can be I, V, M, F, or Y.

<221> VARIANT
<222> 8
<223> The amino acid at position 8 can be any 2
        amino acids.

<221> VARIANT
<222> (10)...(12)
<223> The amino acid at positions 10, 11, and 12 can be
      any three
        amino acids selected from the group of L,
      I, V, M, F, Y, C, and
        T.

<400> 8
Leu Xaa His Xaa Asp Leu Lys Xaa Asn Xaa Xaa Xaa
 1   5   10

<210> 9
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> The L at position 1 can be I, V, M, F, Y,
        or C.

<221> VARIANT
<222> 2
<223> The amino acid at position 2 can be any amino
        acid.

<221> VARIANT
<222> 3
<223> The H at position 3 can be Y.

<221> VARIANT
<222> 4
<223> The amino aɑid at position 4 can be any amino
           acid.

<221> VARIANT
<222> 6
<223> The L at position 6 can be I, V, M, F, or
           Y.

<221> VARIANT
<222> 7
<223> The R at position 7 can be S, T, A, or C.

<221> VARIANT
<222> (8)...(9)
<223> The amino acid at positions 8 and 9 can be any 2
           amino acids.

<221> VARIANT
<222> (10)...(12)
<223> The amino acid at positions 10, 11, and 12 can be
      any 3
           amino acids selected from L, I, V, M, F, Y,
      and
           C.

<400> 9
Leu Xaa His Xaa Asp Leu Arg Xaa Xaa Asn Xaa Xaa Xaa
 1   5   10